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CAN WE REGULATE OUR WAY OUT OF OBESITY?

Dr. Brandon R. McFadden

p.8

AMERICAN COUNCIL ON SCIENCE AND HEALTH

The Compassionate Case For Coal

Hank Campbell, President
American Council on Science and Health

As this issue of Priorities goes to press, our New York office is closed due to a winter storm and that makes people worry about their heating bills. Meanwhile, both New York and California residents have recently been cheering because those states are determined to get rid of their nuclear power plants. That will be very bad because those states are also opposed to both natural gas and coal. They have a sustainability fetish and it will cost the poor because both states have declared fossil fuels too cheap and dirty.

When I was a young man in Pennsylvania, coal was not cheap to us while natural gas was incredibly expensive. We were poor so our house was heated with wood. Much of the late summer and fall was felling trees with a chainsaw, splitting the logs by hand, and storing it in our basement. This remains the plight of almost a third of our world. If we care about poor people having better lives and becoming market economies, there is a compassionate case to be made for coal.

In our last issue Dr. Mikko Paunio discussed how in 2013 our government refused to help provide centralized power plants for the world's poorest countries using the World Bank because we were on a sustainability kick and the only affordable option in poor countries was coal. Our politics are holding those countries back. I was thinking about how our social engineering is hurting the poor worldwide when I spoke with Dr. Lars Schernikau, President of HMS Bergbau Singapore, about an article he had written for CoalAsia Magazine on the challenges the industry faces. Though America has dumped tens of billions of dollars into solar company subsidies and most developed countries have done the same, he noted it's still just over 1 percent of the world's power. Denying developing countries World Bank help because the only affordable option remained coal was a moral, ethical and scientific failing by the United States. Decentralized energy for heating and cooking in homes account for most ambient air pollution in the developing world. Affordable centralized power, which coal is, makes it possible to improve their air quality, and it allows for modern water supply and sewage systems, which improve public health. As the Tennessee Valley showed

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Unless your career goal is a job at the DMV, no one wants to be the tortoise

us in the 1930s, with cheap energy for sanitation, disease plummets. Irrigation happens and food gets cheaper. Air gets cleaner. When less annual income is devoted to basic needs like food and heat, culture improves. Today, culture means access to information through the Internet rather than buildings like libraries but cloud servers alone already consume more power than Germany, the sixth largest power consumer in the world. How can poor countries compete in the 21st century if they are shackled by being told they can't have energy unless they first get enough wealth to live like the energy 1 percent in America?

The political war on coal - science stopped being part of the discussion a decade ago - has caused new coal projects to stop, and that has caused prices to fluctuate wildly, which impedes progress. It means the coal industry isn't making new investments and developing new technology that will make coal even cleaner. Like with smart phones and televisions, America has to lead the way so costs can scale low enough for the poor. Given so many that are still forced to heat and cook with wood or even animal dung, we should be cheering on coal as their bridge to a cleaner future and a better life.

It's not an easy argument to make. Last issue I talked about the difficulty in defending motherhood against the many assaults new moms face about how they eat, how they behave, the need for play dates and what books they must read - and the acrimony that will occur if a pregnant woman takes a drink despite the recommendation being made based on a suspect epidemiology paper from the 1970s. Yet if we won't stand up for science even when it means unpopular positions, who will? In America, thanks to a wildcatter named Peter Mitchell who made fracking viable, we have replaced coal with natural gas and we are better for it. We enjoy some of the best air quality in the world thanks to natural gas. Our air is so clean that a few years ago our EPA had to manufacture new concern about air pollution in the form of small micron particulate matter, PM2.5, to give them something to regulate.

The rest of the world needs the chance to have better lives also. It's easy for activists to declare that America has cars and cloud servers and cheap food and energy so we can foist our moral posturing about sustainability off on developing nations. But it's immoral, unethical and a giant national security risk to leave those countries behind. With energy, we can do almost anything. We can even do what ancient alchemists only dreamed about - turn lead into gold. And a future where everyone has a chance at a golden life is why there is a compassionate case to be made for coal. }

Spotlight on HOMEOPATHIC REGULATION

Dr. Stephen Barrett

{ The FDA has proposed new rules for homeopathic product labeling. Do these constitute a historic strategy to tame the homeopathic marketplace? Or will they merely perpetuate the *status quo*.

Homeopathy is nonsense. Its fanciful "law of similars" asserts that substances that can cause symptoms in healthy people will treat health problems that produce such symptoms. Its fanciful "law of infinitesimals" asserts that the greater the dilution, the more potent the product and that even products so dilute that they contain no molecules of the original ingredient can be potent drugs.

Despite all this, a provision of the 1938 Federal Food, Drug, and Cosmetic Act (FDC Act) recognizes all substances included in the Homeopathic Pharmacopeia of the United States as drugs subject to FDA regulation. But the FDA has paid very little attention to homeopathic wrongdoing.

Federal laws and regulations require that drugs marketed in interstate commerce be approved by the FDA as safe and effective for their intended purposes. No homeopathic product has ever been FDA-approved, and there is no logical reason to believe that any ever will be. In fact, the vast majority of substances in the Homeopathic Pharmacopoeia have never been tested.

The current version of the Pharmacopeia contains 1-page "monographs" that describe physical characteristics and manufacturing procedures for about 1,300 substances of plant, animal, and mineral origin. The monographs contain no information about how the products should be used. Their intended uses are determined by manufacturers and prescribers, based mainly on the results of "provings," most of which were conducted more than a century ago. During “provings,” people record what they feel during a predetermined period time after swallowing a substance. More than 100,000 symptoms noted during provings have been compiled into books called “materia medica” that are used to guide remedy formulation and selection.

Although all drugs marketed in interstate commerce are within the FDA's scope, the agency did not adopt a formal homeopathic policy for nearly fifty years. From 1938 onward, the FDA essentially relied on informal "understandings" between the agency and homeopathic industry leaders. The 1962 Kefauver-Harris amendments to the FDC Act requires that all drugs be effective as well as safe. This law triggered an extensive review of prescription drugs that was followed by an extensive review of over-the-counter (nonprescription) ingredients. However, homeopathic products were exempted from these reviews.

In the 1980s, discussions between members of the FDA's Compliance Office and industry leaders led to the development of a formal policy. The resultant Compliance Policy Guide, implemented in 1990, permits homeopathic products to be marketed over the counter for "self-limiting disease conditions amenable to self-diagnosis (of symptoms)."

While the discussions were taking place, the FDA’s chief enforcement official told me that if the agency required all homeopathic products to meet drug-approval standards, none could be legally marketed, but Congress would probably rescue them. I believe that the negotiated policy guide was intended to protect the public against homeopathy’s most serious dangers while protecting the FDA from political controversy. Unfortunately, it also opened the floodgates to thousands of products that were falsely claimed to provide symptomatic relief.

Since the original policy guide was issued, the FDA has taken about 60 regulatory actions related to homeopathic products. Most have been warning letters to companies that claimed that products were effective against serious diseases or equivalent to approved vaccines. There have also been a few recalls of products that were found to contain toxic ingredients.

In December 2017, the FDA proposed new "risk-based guidelines" that give enforcement priority to homeopathic products with the greatest potential risk to patients—those that are unsafe or are intended for the treatment of serious diseases. Major media outlets have headlined the proposal as a “crackdown” on homeopathy. But it is not. It merely spells out what the FDA has been doing since its compliance policy guidelines were issued—which is not enough.

YOUR HELP IS NEEDED

If the FDA really wants to protect consumers, it needs an enforcement policy that is so efficient that unsubstantiated claims can be deterred or quickly driven from the marketplace. The key strategies are to (a) limit the products to single-ingredients that strictly comply with the Homeopathic Pharmacopeia and (b) ban health claims and indications for use that have not been approved through the FDA's standard drug approval process. The only statements permissible in labeling should be the chemical name, the dilution, and that fact that the product is homeopathic. Products consistent with the Pharmacopeia could still be marketed, so consumers who want homeopathic products could still obtain them. But unapproved claims—including implied claims in product names—should be banned.

Armed with such a policy, the FDA, the FTC, and state attorney generals could efficiently demand that Internet outlets (such as Amazon.com) and retail stores stop offering homeopathic products that make any efficacy claim.

The FDA has called for public comments until March 20, 2017, but might extend the date if there is public interest in doing so. If you agree with my suggested strategies, please visit http://www.homeowatch.org/reg/fda_hearing_2015/comment.html for further details and submit a comment in your own words through the FDA comments page at https://www.regulations.gov/document?D=FDA-2017-D-6580-0002 }

Stephen Barrett, M.D., a retired psychiatrist who resides near Chapel Hill, North Carolina, operates quackwatch.org, homeowatch.org, 23 other consumer-protection Web sites and publishes Consumer Health Digest, a free weekly e-mail newsletter.

GENERIC DRUGS AN UNDESERVED

{ Americans are taught a lot of myths about health care. Arguably the most popular one goes like this: big drug companies are evil; they create life-saving medicines then mark them up 5,000 percent because they don't care about sick people on tight budgets. If it weren't for the firms that manufacture generic, affordable versions of these brand name medicines, drug prices would spiral out of control and retired grandmothers would die.

The truth is almost the exact opposite, however. Drug prices are already high and rising, but this stratospheric increase is actually driven by generic medicines that are bought and sold on a health care market that is starved for competition.

Economist Jeffrey Sachs offers us a textbook example of the mythical view of Big Pharma. In his retelling of the myth, the drug maker Gilead develops a cure for Hepatitis C called Sofosbuvir, jacks up its price, and "leaves millions [of people] to die." Of course, all of this malevolence is orchestrated by wealthy CEOs and corporate managers.

Sachs's solution to this corporate greed is to mandate that Gilead license Sofosbuvir to other manufacturers to develop generic versions because competition usually forces prices down. (More on that below.) Gilead did this voluntarily in India by the way, but Sachs, like most commentators, seems oblivious to two other important facts: generic drugs already make up the vast majority of prescriptions, and they're still getting more expensive.

This is a point even the New York Times, no friend to the pharmaceutical industry, concedes in a recent report on price gouging by generic drug manufacturers. Citing a 2016 Government Accountability Office (GAO) study, the Times notes that from 2010 to 2015, "more than 20 percent of generic drugs had undergone price increases of over 100 percent…[which is] worrisome because these drugs account for 90 percent of all prescriptions and are crucial to reducing health care costs."

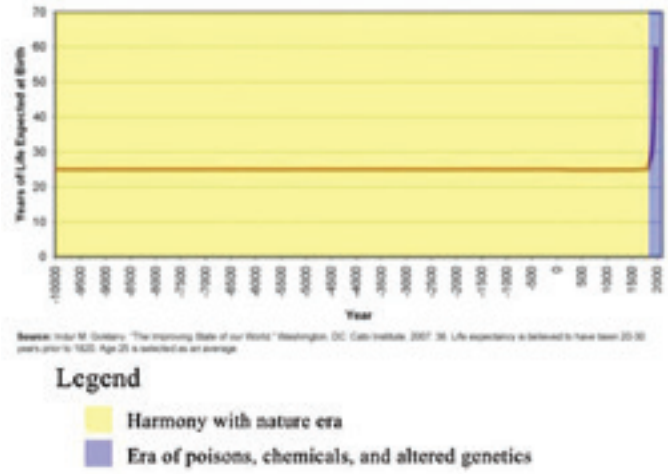
The informed reader may point out that generic drug prices have decreased overall since 2010, but the GAO also explains "...that drugs with extraordinary price increases moderated the overall decline in generic drug prices," and that these increases remained long term.

This result was confirmed by the findings of another study, published in July 2017, which looked at the prices of 1,120 generics. Researchers found that shortages in the manufacturing supply chain and a reduction in the number of manufacturers of a drug have forced prices up, and "this trend appears likely to continue unless policies are enacted to stabilize generic drug markets," according to ScienceDaily.

The kinds of policies that would stabilize the generics market make economic sense, but they would almost certainly run into political roadblocks. For example,

GET HALO

Cameron English



Life expectancy during the "harmony with nature" period of history versus the era of poisons, chemicals and altered genes.

importing generic drugs from foreign manufacturers would ease supply chain issues and increase the number of suppliers selling to American pharmacies. In some cases, imported drugs cost just 10 cents per pill. But many foreign manufacturers are unwilling to submit to the U.S. Food and Drug Administration's (FDA) expensive regulatory oversight. Plus, it's illegal for you and me to import drugs manufactured outside the U.S. in most cases, even if they've been approved by regulators in a developed country. The FDA says this restriction is necessary because the agency "...cannot ensure the safety and effectiveness of drugs that it has not approved."

U.S. pharmaceutical firms have likewise expressed concerns about the safety of imported drugs, which they say are more likely to be "counterfeit or adulterated." This is a reasonable concern, but recent proposals that would allow drug imports anticipate this objection. The legislation put forward earlier this year by senator Bernie Sanders (D-VM), for instance, would require the FDA to inspect any foreign manufacturing facility that could export drugs to the U.S.

Moreover, this export opportunity would only be open to Canadian drug companies initially, which have to meet rigorous safety standards to sell pharmaceuticals in Canada. After two years, the U.S. Secretary of Health and Human Services could allow countries in the Organisation for Economic Co-operation and Development (OECD) to export drugs to American wholesalers, licensed pharmacies, and individuals. However, these countries would have to "...meet specified statutory or regulatory standards that are comparable to U.S. standards."

The media has on occasion identified this problem of limited access to medicine, too. The left-leaning news outlet Slate, for example, acknowledges that more competition could expand the generics supply and says the FDA's 3-year-long review process is standing in the way. But the writers at Slate don't realize (or at least don't want to say) that imported drugs are an obvious solution. Their answer instead is to increase the FDA's funding and restrict the prices that American drug companies can charge for generics. If you remember your college economics, though, you'll recall that price controls typically result in shortages.

In sum, the problem isn't that some drug companies are greedy while others are noble. Everybody is greedy, as economist Milton Friedman once quipped. The problem is that our over-regulated, dysfunctional health care system needs free trade. These aren't the musings of drug industry lobbyists or libertarian policy wonks at the Cato Institute. This is a message that comes straight from the FDA. }

Cameron English is a freelance science and health writer in Sacramento, California.

Can We Nudge, Instead of Regulate, Our Way Out of Obesity?

Dr. Brandon R. McFadden

We make poor decisions. We do this for many reasons, like time and cognitive limitations, biases, and poor habits. We may wish our past self ate more vegetables or saved more money. So how can we help our present self make decisions that our future self will not regret without removing freedom of choice? Through "behavioral nudges."

A classic example of a successful behavioral nudge is Richard Thaler's work on 401k enrollment, which helped earn him the most recent Nobel Prize in Economics. While older employees wished that they had saved more for retirement, new employees rarely enrolled in the retirement savings program.

Taking advantage of the human tendency toward behavioral inertia (i.e., people accept the status quo because change requires action), some companies changed 401k enrollment from an opt-in decision to an opt-out decision. In other words, employees were automatically enrolled in the plan with the option to opt-out. Guess what? There was a dramatic increase in enrollment in retirement savings plans.

Behavioral economics can also be utilized to reduce public health costs. When costs are not completely internalized by participants in a market, there is a spillover effect that economists refer to as an externality. Externalities can be positive or negative, depending on whether the spillover effect is beneficial or costly for society, and sometimes positive externalities are subsidized (e.g., public education) and negative externalities are taxed (e.g., cigarettes).

In the case of obesity, the costs are not completely internalized by an individual because taxpayers fund almost two-thirds of medical costs. The spillover effect associated with obesity increases with government

spending on healthcare, and outlays for health programs as a percentage of GDP is at an all-time high of 6.6%.

The economist's classic response to these concerning numbers are taxes and subsidies. Unfortunately, the traditional approaches appear to fall short in successfully addressing obesity. The most concerning problem with "fat taxes" and "thin subsidies" are the regressive effects that arise because of dietary patterns that exist before the regulation is enacted. People with lower income tend to eat a less healthy diet, and therefore fat taxes increase the prices paid by low income households and decrease the prices paid by high income households. Thus, the subset of the population who can least afford to bear the burden of regulation from fat taxes are forced to unduly absorb more of the cost while collecting less of the benefit.

If nothing else, there are definite unintended consequences that cannot be controlled by regulation. For example, taxes on soda sizes, like previously proposed in New York City, could easily be avoided by sellers bundling smaller sized sodas and may have resulted in behavioral reactance where some people consume more soda to defy the authoritative nature of the regulation. Behavioral reactance is less likely in places like Berkeley, where the tax was voted for by citizens rather than imposed by politicians. Nevertheless, while the Berkeley tax did decrease soda sales within the city by 9.6%, the regulation still had an unintended consequence as soda sales in surrounding areas without a tax increased by 6.9%.

By contrast, a behavioral nudge can help individuals overcome common decision-making mistakes that are predictable and corrigible without redistributing costs and benefits. People can be nudged to make healthier food choices by changing product positioning or providing cues. For example, when green arrows with the text, "Follow green arrow for health," were placed in a grocery store, sales of produce increased.

A behavioral nudge can help individuals overcome common decision-making mistakes that are predictable and corrigible without redistributing costs and benefits. People can be nudged to make healthier food choices by changing product positioning or providing cues

Obviously, the person making the nudge is picking a winner (in the previous case, vegetables). However, it is important to remember that something has to be the default option that is stocked at eye level. Society may as well make the default option as healthy as possible.

Unfortunately, nudging is not a cure-all. The consequences of poor dietary choices are not immediately obvious to people. Food that tastes good is often more appealing than food that is healthy. Nevertheless, behavioral nudges are more than a passing fad. Making deliberate changes in the way choices are presented to the public can positively influence decision-making and reduce future regrets without the costs and unintended consequences associated with regulation.

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'Social Justice Warrior' Vandana Shiva Is A Poor Advocate for the Poor

Dr. Henry I. Miller and Prof. Drew L. Kershen

Although she gets good press from left-wing and environmental publications, and naïve undergraduates dote on her, Shiva is widely considered by the scientific community to be abjectly unbalanced (in both senses of the word) for advocating unsound policies and promulgating disproven theories about agriculture

The recently-published "*Social Justice Warrior Handbook*," which satirizes people who promote liberal, multicultural, anti-capitalist, anti-globalization, politically correct views, could have had Indian activist and mountebank Vandana Shiva on the cover. She opposes the tools and practices of modern agriculture and science--and well, modernity in general—and advocates retrogressive policies that will cause widespread malnourishment, deprivation and death to the very people she claims to champion. And she's no friend of the environment, either.

Illustrating the quest for "Back to Natutre" and anti-globalization fervor that has infected many U.S. universities, Shiva has been a popular guest lecturer at American universities. In recent years, she has been invited to a number of U.S. campuses, including Beloit College, the College of New Jersey, Arizona State, the University of Utah and Wake Forest and Georgia Southern Universities, among others. Although she gets good press from left-wing and environmental publications, and naïve undergraduates dote on her, Shiva is widely considered by the scientific community to be abjectly unbalanced (in both senses of the word) for advocating unsound policies and promulgating disproven theories about agriculture.

As science writer Jon Entine and Monsanto science communicator Dr. Cami Ryan discussed in a Forbes article, many of Shiva's hobby horses have proven to be exceedingly lame. Some prominent examples:

- *The "Green Revolution."* The new varieties and practices of the Green Revolution provided greater food security to hundreds of millions of people in developing countries on much of the planet; it made available high-yielding varieties of wheat and also new agronomic and management

practices that transformed the ability of Mexico, India, Pakistan, China, and parts of South America to feed their populations. From 1950 to 1992, the world's grain output rose from 692 million tons produced on 1.70 billion acres of cropland to 1.9 billion tons on 1.73 billion acres of cropland—an extraordinary increase in yield per acre of more than 150 percent. India is an excellent case in point. In 1963, wheat grew there in sparse, irregular strands, was harvested by hand, and was susceptible to rust disease. The maximum yield was 800 lb per acre. By 1968, the wheat grew densely packed, was resistant to rust, and the maximum yield had risen to 6000 lb per acre. Without high-yield agriculture, either millions would have starved or increases in food output would have been realized only through drastic expansion of land under cultivation—with losses of pristine wilderness far greater than all the losses to urban, suburban and commercial expansion.

And yet, from her perch in a parallel universe, Shiva contends that the Green Revolution actually caused hunger. Here, as elsewhere, she employs the propaganda technique known as the Big Lie, a phrase coined by Adolf Hitler in his 1925 book Mein Kampf. Shiva promulgates lies so "colossal" (as Hitler put it) that it seems inconceivable that someone could "have the impudence to distort the truth so infamously." Read on.

- *Golden Rice, genetically engineered varieties that are biofortified, or enriched, by genes that produce beta-carotene, the precursor of vitamin A.* These could be a monumental public health breakthrough, because vitamin A deficiency is epidemic among poor people whose diet is composed largely of rice, which contains no beta-carotene or vitamin A. In developing countries, 200 million-300 million children of preschool age are at risk of vitamin A deficiency, which increases their susceptibility to illnesses including measles and diarrheal diseases. Every year, about half a million children become blind as a result of vitamin A deficiency and 70% of those die within a year. But Shiva is opposed to it: "By focusing on only one crop, rice, which by itself does not provide all the nutrients, including higher quantities of Vitamin A than Golden Rice, the Golden Rice pushers are in fact worsening the crisis of hunger and malnutrition." "Promoters of Golden Rice are blind to diversity, and hence are promoters of blindness, both metaphorically and nutritionally," she adds. Shiva has dismissed Golden Rice as a hoax and a myth–which are the vilest sort of lies, not unlike those of the pernicious charlatans who condemn childhood vaccination for the prevention of infectious diseases.

As Entine and Ryan wrote: "Shiva's alternate proposed solution for promoting a 'diversity of diet' has not worked for the very poor who cannot afford to buy vegetables or fruits, or cannot devote the land on their subsistence farm to grow more of them." The hoax is Shiva's unworkable alternative, not the proven capabilities of genetic engineering.

- Genetically engineered, pest-resistant cotton (Bt-cotton, so-called because it contains a protein from the bacterium Bacillus thuringiensis that kills certain insects). Shiva claims that the cultivation of these seeds is not only ineffective but actually causes hundreds of thousands of farmer suicides in India. But Shiva's statistics are cherry-picked, largely irrelevant and often simply wrong, and her argument relies on a fallacy of logic known as post hoc, ergo propter hoc–after the fact, therefore because of the fact. In other words, she confuses correlation with causation, the kind of "logic" that leads one to believe that autism is caused by organic food because of graphs like this one.

In a 2013 article in the journal Nature, agricultural socio-economist Dominic Glover observed, "It is nonsense to attribute farmer suicides solely to Bt cotton," and moreover, "Although financial hardship is a driving factor in suicide among Indian farmers, there has been essentially no change in the suicide rate for farmers since the introduction of Bt cotton."

Reinforcing Glover's observations, a definitive, comprehensive study of Bt-cotton in

India published in 2011 concluded: "Bt cotton is accused of being responsible for an increase of farmer suicides in India. . . Available data show no evidence of a 'resurgence' of farmer suicides. Moreover, Bt cotton technology has been very effective overall in India. Nevertheless, in specific districts and years, Bt cotton may have indirectly contributed to farmer indebtedness, leading to suicides, but its failure was mainly the result of the context or environment in which it was planted." A 2006 study of four of India's major cotton-producing states found that Bt-cotton gave rise to yield gains of approximately 31% and a 39% decrease in number of insecticide sprays, which led to an 88% increase in profitability, equivalent to about $250 per hectare.

The New Yorker's Michael Specter wrote that Shiva has been called the "Gandhi of grain" and been "compared to Mother Teresa." We think a more apt comparison would be to Trofim Denisovich Lysenko, the charlatan and ideologue who single-handedly laid waste to Soviet agriculture during the Stalin era and for years thereafter

Eminent UC Berkeley agricultural economist David Zilberman echoes those findings and sums up India's experience with genetic engineering this way: "India gained from adopting [genetic engineering applied to] cotton but has lost from not adopting it with other crops. The US, Brazil and Argentina adopted [genetic engineering] in corn and soybean, which led to increases in output and gains from exporting these extra crops. India and the rest of the world have also indirectly enjoyed benefits from the increased global supply of corn because of [genetic engineering].

In a 2014 article, "Seeds of Doubt," in The New Yorker, investigative journalist Michael Specter called into question a number of Shiva's claims regarding genetic engineering, as well as her ethics and judgement:

> At times, Shiva's absolutism about [genetic engineering] can lead her in strange directions. In 1999, ten thousand people were killed and millions were left homeless when a cyclone hit India's eastern coastal state of Orissa. When the U.S. government dispatched grain and soy to help feed the desperate victims, Shiva held a news conference in New Delhi and said that the donation was proof that "the United States has been using the Orissa victims as guinea pigs" for genetically engineered products. She also wrote to the international relief agency Oxfam to say that she hoped it wasn't planning to send genetically modified foods to feed the starving survivors. When neither the U.S. nor Oxfam altered its plans, she condemned the Indian government for accepting the provisions.

We endorse shopping in the marketplace of ideas, but not when toxic goods there pollute it. Recall Daniel Patrick Moynihan's observation that everyone is entitled to his own opinion but not his own facts. Shiva is a seemingly endless font of bogus, made-up facts–that is to say, lies--and bizarre reasoning.

Even the way Shiva represents herself to the public at large and to potential speaking venues–variously as a "scientist," "nuclear physicist," or "quantum physicist--is

untrue. However, she earned her doctorate not in physics, but in philosophy.

Ironically, Shiva's connection with physics illustrates not her expertise in the discipline, but her wrong-headedness. Her dissertation in the philosophy of science at the University of Western Ontario focused on the debate over a central notion in physics known as Bell's Theorem, which is concerned with "testing whether or not particles connected through quantum entanglement communicate information faster than the speed of light," and which has been called the "most profound theory in science." The abstract of Shiva's dissertation states, in part: "It has been taken for granted that Bell's [theorem] is based on a locality condition which is physically motivated, and thus his proof therefore falls into a class by itself. We show that both the above claims are mistaken" (emphasis added).

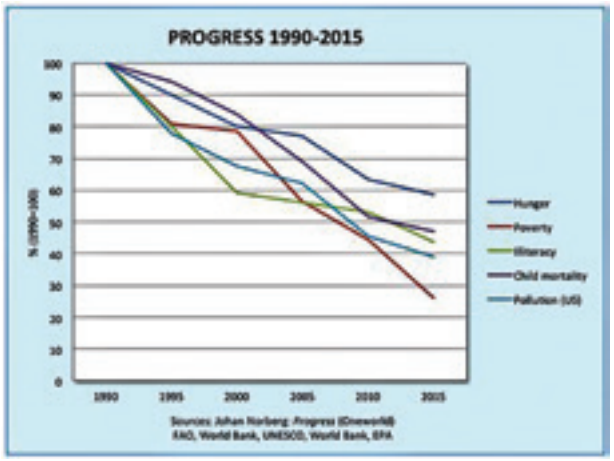
But contrary to Shiva's conclusion, Bell's theorem has been proven scientifically correct. As Entine and Ryan wrote, "The main thesis of quantum mechanics that she challenged has since been confirmed by experimental physics, meaning that her thesis stands at odds with factual reality." But reality testing has never been Shiva's forte.

The New Yorker's Michael Specter wrote that Shiva has been called the "Gandhi of grain" and been "compared to Mother Teresa." We think a more apt comparison would be to Trofim Denisovich Lysenko, the charlatan and ideologue who single-handedly laid waste to Soviet agriculture during the Stalin era and for years thereafter.

While this upper-caste Indian gets little right about science, she is adept at extracting money from sponsors on the lecture circuit. According to her speakers' agency, the Evil Twin Booking Agency (we did not make up that name), Shiva's usual fee for an American university appearance is $40,000 plus a business class round-trip ticket from New Delhi. We can infer, then, that American universities probably pay Shiva around $50,000 for each appearance, at which she exposes their students to her mendacious, baseless attacks on modern agriculture and science.

As for the actual substance of Shiva's presentations at universities, we can only imagine… After all, she is the author of "In Praise of Cowdung" – a paean to peasant agriculture and an attack on improved seeds and modern fertilizers in Indian agriculture. That essay in particular reminds us of an old "Peanuts" cartoon in which the character Lucy van Pelt is about to embark on a writing assignment. "Write about something you know well," the teacher instructs. Lucy begins typing, "The air hung heavy with stupidity…" }

Henry I. Miller, a physician and molecular biologist, is the Robert Wesson Fellow in Scientific Philosophy and Public Policy at Stanford University's Hoover Institution. He was the founding director of the Office of Biotechnology at the FDA. Drew L. Kershen is the Earl Sneed Centennial Professor of Law (Emeritus), University of Oklahoma College of Law, in Norman, Okla.



Activists keep telling us the world is an awful place and only more regulations will save us. What's being saved are humans all over the planet thanks to science and technology.

YOUR NAILS AND YOUR HEALTH

By Robert L. Bard, MD, DABR, FASLM,
Director, Bard Cancer Center, New York City

Like your teeth, your nails hold valuable clues to your body's overall health. Here is a quick list of nail deformities that might be signs of something more serious.

Spoon-like nail shapes - Can indicate iron deficiency or even anemia.

Horizontal lines - also called Beau's lines. This could be circulatory disease.

Brittle nails - Thyroid malfunction. It could also be a parathyroid benign tumor that is curable with a 20 minute operation

Bluish tint - you're not getting enough oxygen

Opaque but with a dark band beneath the top of the nail - Also called Terry's nails. It could be just aging but in a younger person this could be malnutrition, congestive heart failure or even liver disease

GLYPHOSATE

In Europe, technical matters which should be science-based, such as the authorization of marketing for chemicals or genetically engineered plants, quickly turn highly political. Even after having received as a prerequisite a green light from the European safety agencies, their authorization is dependent on a vote under a “qualified majority rule” of the 28 members states. This usually opens the door to demagoguery and domestically focused political calculations, with little consideration on the advice provided by scientific agencies. The renewal of the herbicide glyphosate has reached an unprecedented peak to this regard.

On November 27th, 2017, the EU member states finally agreed on a five-year renewal period for glyphosate, instead of the originally proposed 15 years. This was only possible since Germany unexpectedly voted in favor of renewal. In a typical French state of mind, President Emmanuel Macron said that he will ban glyphosate "as soon as alternatives have been found, or within three years at the latest.”

The glyphosate case also illustrates the “Era of Post-Truth” on scientific questions in the European Union, and in France in particular. The following fiction has become mainstream thinking: evil industries and productivist farmers are lobbying for the renewal of this herbicide at the detriment of health and the environment, neglecting its classification as a "probable carcinogen.” The facts are, however, strikingly different.

The classification as a "probable carcinogen" by a single working group of the International Agency for Research on Cancer (IARC) has been refuted by a dozen scientific agencies around the world. Although fully marginalized, the IARC classification has stayed a favorite meme in most media. The dominance in media of false claims on glyphosate has been quantitatively analyzed in a blog post (in French).

Briefly, it says that 59% of the articles proposed by the French press were opposed to glyphosate (24% of which rather virulently), and these negative articles reached 84% of the Facebook audience. Furthermore, the arguments presented by the press from the Left

The Triumph of Post-Truth in Europe

Dr. Marcel Kuntz

side of the political spectrum were 100% opposed to glyphosate, while 50% were negative in the press from the Right. (Most of the positive arguments were related to the economic importance of glyphosate.)

Thus, the French media stubbornly propagated "fake news" in regard to glyphosate by ignoring the broad scientific consensus on glyphosate being of low toxicity, not being an endocrine disruptor, and not being a "carcinogenic" compound under normal use. The press also ignored the facts pointing to the capture of the IARC working group on glyphosate by anti-pesticide activists, some with links to law firms seeking to earn a lot of money through lawsuits based on IARC's decisions. Astonishingly, the press also ignored the inquiry by a journalist from Reuters who found unexplained last-minute changes made to the IARC report on glyphosate, which in each case went against the use of glyphosate.

Such a profound reality gap between scientific consensus and press articles deserves to be named the Triumph of Post-Truth. It is the outcome of a long anti-glyphosate campaign by anti-pesticide activists.

This and other similar campaigns have taken root in the public as a consequence of a powerful disinformation movement operated for decades by professional activists. These disinformation groups are incredibly skillful at manipulating the public, while being destructive to science, agriculture, biotechnology, and many industries. These activists are exclusively concerned with promoting the political and financial well-being of the organic industry, science be damned.

Through the deification of Mother Nature and the shameless exploitation of public fear, this political movement has been able to proclaim itself as protecting the environment, public health, and the common good. Of course, these are all fictions. But in Europe, the Enlightenment has been supplanted by the Era of Post-Truth. }

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A BRIEF QUAC

"The Quack is a personage too essential to the comfort of society to be deprived of his vocation. He is, in fact, the Physician of the Fools, a body whose numbers and respectability are by far too great to admit of anything of the kind."

"Punch", 1845

{ Many well-educated, skeptical people suffer from a failure of logic when it comes to matters of health. Some studies even suggest that the more educated the person, the more likely they are to fall for some form of quackery. A major logical failing of the educated, although it is rarely recognized for what it is, is instead simply prejudice. Too many believe they have gained some secret insight because of their wealth or reading and decide that everything "organic" is good, while conventional "chemicals" are somehow unhealthy, that "natural" is good, and "artificial" is bad.

This is just prejudice. The wise question is not whether something is "natural" or "artificial", "new" or "old", "organic" or "conventional", but simply whether something is good or bad. Not all chemicals are bad, and not everything natural is good. And all that is original and novel is not necessarily good.

It's easier to be original and foolish than original and wise (Liebnitz).

SUBJECTIVE VALIDATION

When a person who believes fervently in some idea is confronted by evidence that they are wrong they may react emotionally and consider the evidence to be a personal attack. They will then deny the evidence, no matter how strong it might be. This emotional reaction is part of common human nature; it takes a strong, objective mind to combat it, and it is exploited by quacks. Even my well-educated friends take vitamin supplements, despite the overwhelming evidence that they (and almost everyone else) don't need them. And I cannot, despite my elo-

KERY PRIMER

Dr. Marvin J. Schissel

quence and scientific demonstrations, shake their beliefs

Evidence, to be acceptable, must follow the rules. Evidence based on logical fallacies, poorly designed or faked studies, testimonials and anecdotes, is not acceptable; these are the methods of quacks. We prefer science to pseudo-science. "Alternative" Medicine is a red herring; *there is no alternative to proper treatment*.

AUTHORITARIANISM – CREDENTIALS

The fallacy of the *appeal to authority* is another pitfall exploited by the quacks. Credentials can be phony, can be meaningless, can be purchased. Even people with genuine credentials can be dead wrong. Citing credentials or quoting authorities are no guarantees of reliability. Uri Geller said, "If there is a God, I am right" but James Randi absolutely proved him wrong for Johnny Carson on "The Tonight Show". Many quacks boast of fancy sounding degrees from unaccredited mail-order diploma mills, and display impressive-looking plaques on the wall.

PSYCHOLOGY OF QUACKERY

Many intelligent people retain the rebelliousness of youth under the guise of "individuality". They are resentful of Authority and the Establishment; they may be jealous of "wealthy doctors"; they may harbor the desire to have trendy knowledge ("I'm smarter they they are, I'm up on the latest"). And a touch of paranoia can play its part ("the establishment is trying to conceal the truth about cancer, the environment, nutrition, but they can't fool me.")

Quackery can be appealing because it's consistent with the American notion of freedom and individuality and resistance to control and dogma.

QUACKS COUNT ON:

- **The placebo effect**, which improves chronic symptoms about half the time. The quack is quick to take the credit.

- **The waxing and waning of chronic symptoms.** When the symptom gets worse, the patient goes to the quack, who takes the credit when the symptom gets cyclically better, as it would have done anyway.
- **Misdiagnosis.** A favorite quack trick: he tells you you have a disease you don't have, then he cures you.
- **Spontaneous remission.** Occasionally, a serious disease improves or gets better for no detectable reason. The quack will loudly take credit, without mentioning his many failures.
- **Phony "prevention" programs.** It's very easy to successfully treat a patient who has nothing the matter with him. Often the patient is a too-willing accomplice to the deception (or self-deception. Norman Cousins is an example.)

QUACKERY AND THE LAW

The public erroneously believes that it is protected from Quackery by the law and this gives people a false sense of security. That makes it easier for the quack to deceive. In reality, quackery is not necessarily illegal; in any case, it is very difficult to prosecute even the most flagrant quackery.

Even if it is prosecuted, the quack is often able to hoodwink scientifically illiterate judges and juries, and then will point to the favorable law decision as "proof" of their beliefs. That is why the quack prefers the courts of Law to the courts of Science. The Law says "you are innocent until proven guilty". Science says the opposite: "You are guilty until proven innocent". A scientific treatment is no good and shouldn't be used until it is proven safe and effective.

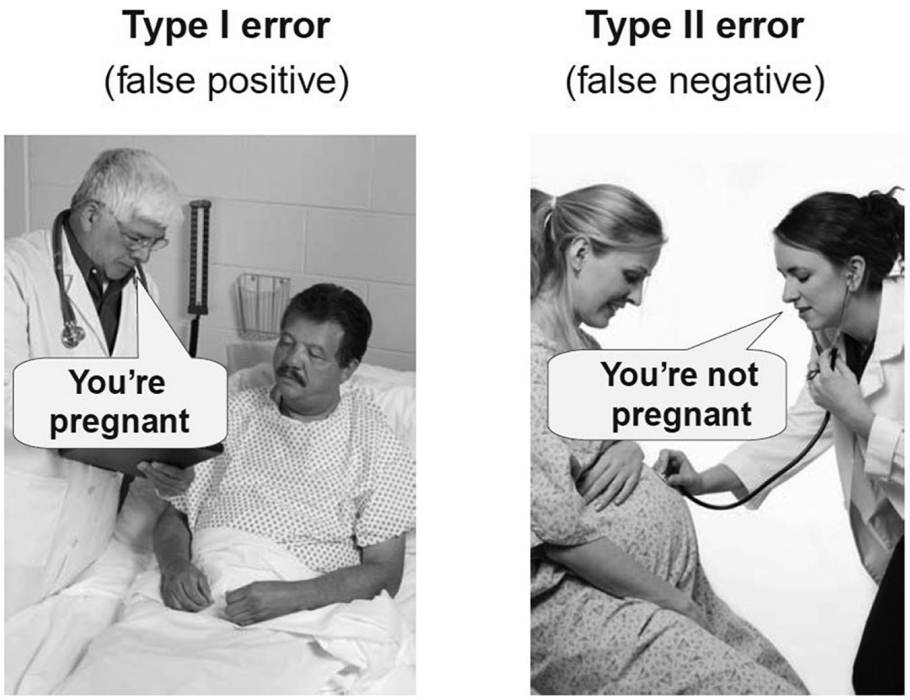
HOW QUACKS DO IT

Methods Of The Quack: The Quack makes unscientific claims and defies you to disprove them whereas a real scientist develops and displays proof before making claims. A real doctor has scientific evidence that a treatment is safe and effective before they will use it.

The Quack uses complicated language and systems to cover up a simple but non-scientific principle. Chiropractic claims that all disease stems from mis-alignments of the spine, for example. The dental temporomandibular joint (TMJ) quack claims that numerous diseases come from misalignment of the jaw joint. They take simple concepts and then obscure them with all sorts of complicated pseudo-language.

Additionally, quack jargon commonly makes use of emotionally loaded catch words, such as alternative, holistic, prevention, nutrition, immune system, wellness and more.

That is why the Quack focuses on what I call the "quack-sensitive" ailments, such as arthritis, headaches, depression, loss of "vigor", malaise, multiple sclerosis, sexual difficulties, etc. These are real ailments characterized by chronic discomfort and often incorporating emotional



A handy guide to the difference between a false positive and a false negative.

factors; conventional medicine finds these difficult to treat successfully. The Quack hurls themself into the breach.

ATTACK THE ESTABLISHMENT FOR PROFIT

The Quack always finds a way to make a profit on the latest beliefs. They rely on authoritarianism, logical fallacies, falsehoods, unsupported assertions, anecdotes, testimonials. They never defend methods by showing proof, but instead attack the "establishment". They respond to criticism by threatening to sue. Most importantly, they always comes up with something "new". As soon as one thing is disproved, they are ready with another, equally fallacious.

If a quack is wrong with 99 times patients and turns out to be right once, they claim to be a courageous pioneer. If a legitimate doctor is right 99 times and wrong once, the quacks only talk about how mainstream medicine (they will call it "allopathic", to make it sound like medicine is just a parallel to homeopathy, naturopathy, etc.) is wrong.

MOST WORRISOME IS THE SINCERE QUACK

If a quack is sincere, and really believes in what they're doing, does that make it all right? I think it is safer to go to the quack who knows they are a quack; at least fear of legal reprisal may prevent them from killing you. A Long Island chiropractor, 35 years old, died in Mexico where his cancer was being treated with the "alternative holistic" methods he believed in.

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"MAY YOU NEVER KNOW WHAT WE'RE PREVENTING!"

This statement, from an advertising "newsletter" put out by a so-called "holistic" dentist, shows the Quack's "bait and switch" technique. The quack is, in essence, saying: "prevention is good" and if you don't get a disease, it worked. They pretend that because the first part is true (prevention is good) then the second part must also be true (what I do constitutes prevention). This is, of course, a disguised non-sequitur. If challenged, the quack defends the first half of their statement and condemns you for attacking "prevention", as if their methods and "prevention" were one and the same. }

Marvin J. Schissel, DDS, is the author of "Dentistry and Its Victims" and a member of the American Council on Science and Health Board of Scientific Advisers.

"It is believed" is at least honest. Thanks to Dr. Stephen Barrett of Quackwatch for passing this along

ACSH President Hank Campbell with Michael Milken at the Milken Institute Future of Health Summit

Dr. Jamie Wells and Ambassador Nancy Brinker, founder of Susan G Komen & Presidential Medal of Freedom awardee

ACSH was at the American Action Forum on Medicare Part D with Senator Lindsey Graham

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