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Wise Traditions

IN FOOD, FARMING AND THE HEALING ARTS

A PUBLICATION OF THE WESTON A. PRICE FOUNDATION®

Education • Research • Activism

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Volume 22 Number 2 Summer 2021

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THE WESTON A. PRICE FOUNDATION®

Education • Research • Activism

The Weston A. Price Foundation is a nonprofit, tax-exempt charity founded in 1999 to disseminate the research of nutrition pioneer Weston A. Price, DDS, whose studies of isolated nonindustrialized peoples established the parameters of human health and determined the optimum characteristics of human diets. Dr. Price's research demonstrated that men and women achieve perfect physical form and perfect health, generation after generation, only when they consume nutrient-dense whole foods and the vital fat-soluble activators found exclusively in animal fats.

The Foundation is dedicated to restoring nutrient-dense foods to the American diet through education, research and activism and supports a number of movements that contribute to this objective, including accurate nutrition instruction, organic and biodynamic farming, pasture-feeding of livestock, community-supported farms, honest and informative labeling, prepared parenting and nurturing therapies. Specific goals include establishment of universal access to clean, certified raw milk and a ban on the use of soy-based infant formula.

The Foundation seeks to establish a laboratory to test nutrient content of foods, particularly butter produced under various conditions; to conduct research into the "X" Factor, discovered by Dr. Price; and to determine the effects of traditional preparation methods on nutrient content and availability in whole foods.

The board and membership of the Weston A. Price Foundation stand united in the belief that modern technology should be harnessed as a servant to the wise and nurturing traditions of our ancestors rather than used as a force destructive to the environment and human health; and that science and knowledge can validate those traditions.

The Weston A. Price Foundation is supported by membership dues and private donations and receives no funding from the meat or dairy industries.

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President's Message

In our book *The Contagion Myth*, WAPF vice president Tom Cowan, MD and I argue that there is no such thing as contagious disease—that is, disease transferred from a sick person to a well person via pathogenic bacteria or viruses. Disease results from nutrient deficiencies, poisons (including electro-magnetic poisons) and injury, and any microbe found associated with a disease is the result, not the cause of the illness.

But now that a large portion of the population has received an injection against Covid-19, we are hearing about a new kind of contagion—unvaccinated people getting sick after contact with vaccinated individuals. There are reports of menstrual irregularities, miscarriage, fatigue, rashes and strange bruising in the unvaccinated after close contact with the vaccinated.

One theory holds that the culprit is a spike protein, so called because of its arrowhead-like structure, which the body's own cells make after getting the shot. In a December 8, 2020 letter to the FDA, Patrick Whalen, MD, PhD, of UCLA warned that the injection of spike protein into the blood could cause damage to the cardiovascular system, including clots and inflammation of the heart. The spike protein can also cross the blood-brain barrier and cause damage to the brain. Research has shown that those receiving the injection shed spike proteins in the feces and urine, and a Pfizer document admits that people can be environmentally exposed by inhalation or skin contact. Another theory posits that the RNA injected into people "broadcasts" contagion to others.

Whatever the explanation, what we are witnessing is a "vaccine" that transfers illness to others! The developers of this injection have figured out how to deliver and stabilize the RNA in the injection using the antifreeze PEG (called "lipid nanoparticles"), "viral" vectors and other compounds. Additional poisons added to the shot can make the recipients sick in a variety of ways. The "virus," now blamed on Chinese scientists in Wuhan, is the cover. What irony—it's not the unvaccinated who threaten the vaccinated as claimed, but the vaccinated who threaten the unvaccinated!

While our country may be getting back to normal, it's clear that the Covid story is far from over. But meanwhile, we can all enjoy ourselves at Wise Traditions 2021, to be held in Allen, Texas (near Dallas), November 5-7. We have a fantastic lineup of speakers including Robert F. Kennedy, Jr., Del Bigtree, Natasha Campbell-McBride, Andrew Kaufman, Stephanie Seneff, Beverly Rubik and many others. See page 10 for details. No masks required so we look forward to seeing your shining faces there!

Letters

EMERGENCY ROOMS ARE FULL

A friend was riding a mountain bike on a ten-mile road last night. He came upon a preacher from this area that I used to work out with. I had told him not to get the vaccine. He told me not to worry.

The preacher knows a lot of people in the community and a bunch of his friends are nurses. According to the nurses that he knows, the emergency rooms in this town have been full, not from Covid, but from the vaccine side effects. He told me that the hospitals were not letting the nurses record what was the cause of the illnesses.

Becky Plotner
Rossville, Georgia

WEIRD THINGS HAPPENING

Thank you to WAPF for the tremendous help that you have been to our family. Thank you for standing tall and strong and speaking your truth and for not compromising what is right to get along. Once I got over veganism, I could finally hear your message and now I have four healthy, beautiful children. We are in your debt, bless you!

We have had weird things happening to us since the vaccine rollout. My children have never had a vax. My husband and I have had the routine series from the 1970s. None of us plan to get this current poison. Our troubles began in early March 2021. We have not been ruled by fear and have been living our lives as normally as possible, meeting regularly with like-minded people. All of us have been well with the exception of my fifteen-year-old daughter who lost her taste and smell in October and still is not back to normal.

Our weird symptoms began when my period, which was always regular, was three weeks late. Now I am spotting and having painful cramping. This has never happened before. I never have spotting, ever.

However, I am more concerned about my daughters. My eldest daughter is eighteen and she is having similar problems—extreme pain and spotting. She usually has pain during her time of month, but never this bad and never spotting.

My fifteen-year-old daughter, who has not had her normal taste and smell since October, recently felt like she wasn't getting enough oxygen after a martial arts class; a friend in the class (who is only thirteen!) told her that she had gotten her first Pfizer vaccine earlier that day.

All of the girls in our family have had weird feelings in their hearts recently. After I spent a few hours in the car with my dad, who is fully vaccinated (he got them a while ago), later that night I had a weird fluttery sensation in my heart area that lasted for hours.

My eleven-year-old has had weird green bruising on her lower legs and twice had nose bleeds that are so intense that it is like a spigot has been turned on, the blood literally splashes into the sink. Luckily, we have been able to stop the nosebleeds with salt water and ice on the back of her neck.

The boys in our family (my son and my husband) have no differences to report. We are around a wide variety of people but one possible explanation for the weird menstrual cycles is that I have been taking her to physical therapy for a knee injury. The therapy rooms are small and the therapist does a lot of hands-on manipulation. And all of my children attend the martial arts class with children whose parents, and in some cases the children themselves, must have gotten the vax.

Here's my question—my brilliant fifteen-year-old daughter thought of this—as the vaccinated are registering higher on EMF meters and as there seem to be credible videos of neodymium magnets sticking to their injection site, maybe what is happening is a not shedding in terms of viral particles but a form of EMF poisoning from the vaccinated becoming a sort of 5G antenna in our midst? What do you think, and do you have any ideas about how to protect yourself?

Nadine
Baltimore, Maryland

Letters

SHEDDING

My yoga teacher told me that she recently went to stay with her family, who had all been vaccinated. (She has not and never will.) While there, she began bleeding as if having her period, only it was not at all her time, and she said she's had a twenty-eight-day cycle every month since age fourteen. Then her eyes started hurting and she couldn't smell anything. She became exhausted, went for a Covid test and tested positive. She had been around no one except her vaxxed family members. She didn't know at the time that other women were experiencing this.

Shelly
Denton, Texas

A SUCCESS STORY

I am twenty-eight years young and I have been following the WAPF for about five years thanks to my dear friend Margaret Bardell, a chapter leader in Illinois.

Before following WAPF guidelines, I had aggravated bowels and a narrow taste pallet, which have since turned into a strong digestive system. I am now an adventurous eater who will try anything at least three times, enjoys every part of the animal, likes fun fermented foods and more. I had fish eggs for the first time today, yum!

Before following WAPF guidelines, I had very sensitive teeth that required fillings for cavities every few years. Now I have strong, pain-free teeth and haven't had a cavity since.

Before following WAPF, I didn't have enough energy to work all the way through the day and keep a healthy mindset. Now it is not unusual for me to be the last man standing at work.

I believe following the WAPF diet has changed my thoughts. I am able to keep a more level head, I don't get depressed when so many around me are, and I can usually keep a positive mental attitude even through trying times.

Before following the WAPF diet I was supporting mainstream grocery stores and food systems. Now 90 percent of my food dollars stays local and goes to farmers whose hands I have shaken and whose homes and land I have visited.

I became a chapter leader two years ago after leaving the beloved farm in Illinois and moving to Florida. When I moved I went through some culture shock—from farm life to town living. I saw more clearly the disconnect between the people and their food and the land. This motivated me to become a chapter leader and to introduce people to a more nourishing way of eating and interacting with our land.

There is always work to be done, although I can say for certain that the Foundation has helped put me in a much, much better spot than I was before—in friendships, physical well-being, mental health, confidence and spirituality.

Thank you WAPF!

Alex Meyer
Fernandina Beach, Florida

A BEAUTIFUL ROUND FACE

My mom was born in Idaho on a dairy farm in 1940, the fifth of six

Letters

children. I think this picture of her as a second grader looks like the pictures of healthy children with beautiful round faces in Weston Price's book.

She was breastfed and weaned to raw milk and cream. The family ate liver and onions, fresh butter and lard and vegetables from their large garden. Her mother made bread every week. Many days they killed one of their chickens in the morning and ate it for lunch, including the organs. She never developed a taste for sugar.

She had six easy natural births. My youngest brother was ten and one-half pounds, and my mom is a very small woman! While raising six kids, running a successful business with my father and volunteering for many things in the community, my mom never got very much sleep, but she was always healthy and energetic. It's not an exaggeration to say she has never had so much as a cold. I probably don't need to mention that she thinks mask wearing is absurd.

Today at age eighty-one, she and my dad are still running their business and have no plans to retire. She flies around the country, from New Jersey to Hawaii, to take care of her twenty-one grandchildren. She plays the piano at church, and does a lot of volunteer work in the community. She doesn't wear hearing aids or glasses, even while reading. She has no aches or pains. People are shocked when they find out her age, because she moves like a thirty-year-old. She's very agile and limber and still does a lot of physical work. She's always had a positive outlook and a happy disposition.

She has been blessed with robust health her entire life, and she has used that abundant energy to greatly bless the lives of so very many people. Here she is pictured at age seventy-nine, with four of her grandchildren.

Sandy Mara
Chagrin Falls, Ohio

REALLY RAW?

For many years I have been consuming raw milk from a pastured dairy in France called Gaborit. However, because of Covid and closed borders, I was unable to obtain this milk for eleven months and was forced to drink a substitute milk from Switzerland. When I began to have trouble with my teeth, I began to suspect the possibility that the local "raw" milk (Rohmilch in German) might be thermized (heated) although not to the temperature of pasteurization (or perhaps microfiltered or whatever).

What most aroused my suspicions was the experience of a friend, supposedly milk intolerant (and who hasn't drunk animal milk for a good twenty years), who sneezed (red eyes as a bonus) a few minutes after having taken a sip of this "local" Rohmilch. She made it clear to me how irritated she was by this experience and she fervently blamed herself for giving in to my suggestion. However, I must admit that I was the first to be surprised by the reaction she developed so quickly after drinking just one sip. I had concluded that she was perhaps one of the very few people who were truly intolerant to animal milk, even if it were raw.

Nevertheless, a few weeks later, she agreed to test the Gaborit milk (from Jersey cows), which I again had access to. She not only had no reaction to it, but she even felt so good that she drank a whole glass half an hour later.

During the eleven months without the Gaborit milk, I developed five small cavities, as verified by my dentist. I had an appointment to have them filled, and while waiting, was able to get the French milk again. I went to the dentist today and she couldn't believe her eyes.

Letters

In the space of less than a month during which I was once again able to obtain the real certified raw milk from France, all the previously damaged teeth had calcified and hardened as a kind of self-healing, to the point that she told me that there was nothing more that needed to be done.

The milk produced by the Swiss dairy is biodynamic and has the Demeter label. The cows are brown Swiss. I therefore assume that the cows are fed according to anthroposophical guidelines. However, this dairy also produces pasteurized milk, so I wondered whether their Rohmilch is really 100 percent raw and, above all, non-thermized. When I contacted them, they assured me that the milk was not heat-treated in any way, only that they passed it through a cellulose membrane aimed to remove any impurities or dirt from the milk—but I think this is done with all milk and is not a damaging process unless done under high pressure. So I am not sure what to think—I find it hard to believe that the milk has not been heated since its effects are so different from the French milk.

The Gaborit milk comes from Jersey cows, grass-fed and guaranteed without silage. The dairy is located in the region of Maulévrier, with an oceanic climate. The Jersey cows graze on a rich and varied soil maintained organically for more than forty years. The pampered animals are fed mainly on pasture grass and, in winter, on grass and alfalfa hay. Bernard Gaborit's raw butter—a true nectar—has a magnificent golden yellow color that testifies to its nutritional richness.

One more thing of interest: The Gaborit milk can easily be kept in the fridge for a week (or even ten days in winter). When it finally curdles, its taste remains smooth and delicious (a bit like fresh yogurt). The Swiss milk has a much shorter shelf life and, in the end, it has an unpleasantly sour taste which even gives the impression that the product is no longer good for consumption.

It just goes to show that the quality of milk can vary greatly. We need some technique to determine whether milk is truly raw and of high quality.

Michel Chambord
Geneva, Switzerland

Thank you for this most interesting letter. Many people have asked us whether this new technique of microfiltration is an acceptable treatment for raw milk. Yours is the first indication that filtration through a cellulose membrane indeed damages the milk. Most milk is simply poured or piped through a paper filter, which requires no pressure for the milk to pass through it. But the membrane requires pressure and your experience indicates that this type of processing reduces the healing properties of Nature's perfect food.

BPA IN GROCERY RECEIPTS

Regarding the recent dicussion in these pages about BPA in grocery receipts, recent studies have found that individual thermal receipts from retailers and restaurants can contain a mass of BPA that is 250 to 1,000 times greater than the amount in a can of food. So those who handle these receipts frequently definitely need to wear cotton gloves!

John Moody
Irvington, Kentucky

ENGAGING PODCAST

The Wise Traditions Podcast is accessible, comprehensive and engaging like nothing else out there. Though Hilda covers the widest-ranging topics, she always stays true to the values and vibrant worldview of the Weston A. Price Foundation, which are strongly rooted in universal human traditions and interconnectedness with nature. This joyful podcast is the one you will turn to again and again for transforming struggles into solutions. I have shared it countless times, and continue to cheer every time I hit "play." I have tried so many alternative health podcasts, but Wise Traditions nourishes my body, heals my mind and holds my heart!

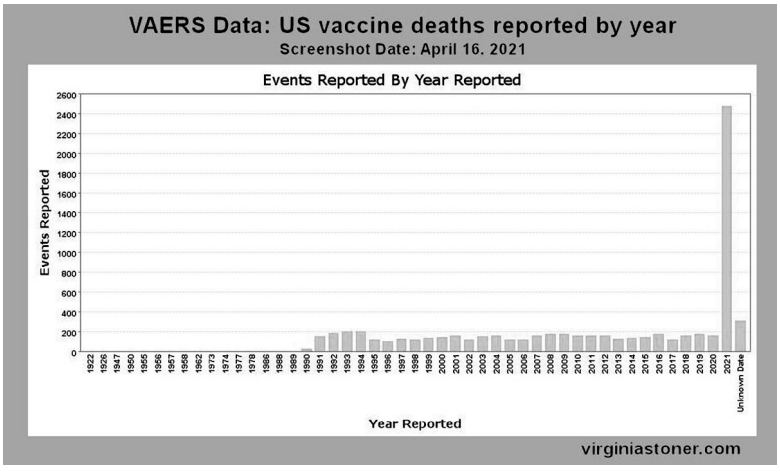
Celanie Jones
Pittsburgh, Pennsylvania

Caustic Commentary

Sally Fallon Morell takes on the Diet Dictocrats

NOT TRUE

"Covid-19 vaccination helps protect people from getting sick or severely ill with Covid-19," says The Centers for Disease Control and Prevention (CDC) website. Pfizer and BioNTech claim that their mRNA drug is "actually highly effective at preventing COVID-19 transmission." According to the *National Geographic*, "Yes, vaccines block most transmission of COVID-19." Millions of people have lined up to have poisons injected into their arms with this promise. Except that it's not true. The CDC has received more than ten thousand reports of Covid-19 infections among people who are fully vaccinated—and the agency admits that this number may represent a "substantial undercount," especially since vaccine recipients believe that if they get sick, it's not because of Covid. Yet, according to America's Frontline Doctors, for those above sixty, during the first fourteen days after the first-dose injection, deaths are almost fifteen times more frequent per day than for the unvaccinated; furthermore, Covid-19 vaccine mortalities increase toward younger ages (americasfrontlinedoctors.org, May 9, 2021). Rather than admit to the public that the vaccine will not protect them, government officials blame the illnesses on "variants" (*Epoch Times*, May 26, 2021). Since that pesky virus keeps on mutating, so the logic goes, you'll just have to get a new vaccine every year., or even every six months!



ALARMING DATA

An alert commentator, Virginia Stoner, has noted an alarming increase in the number of reports of death made to the Vaccine Adverse Event Reporting System (VAERS). She points out that in just the first quarter of 2021, reports of death were twelve times higher than in any other entire year for the last thirty years. "If the rest of 2021 continues like the first quarter, reports of vaccine deaths are on track to reach an incredible 48 times higher this year than ever before in VAERS history. Most of the deaths involve the COVID-19 vaccines" (virginiastoner.com, April 19, 2021). Not to worry, says the CDC: "To date, VAERS has not detected patterns in cause of death that would indicate a safety problem with COVID-19 vaccines."

SIDE EFFECTS

And then there are the side effects. Between December 14, 2020 and April 23, 2021, in addition to more than thirty-five hundred reports of death, VAERS received more than twelve thousand reports of serious injuries. (European agencies have received reports of well over six thousand dead and three hundred thousand injuries from the vaccines.) These included life-threatening allergic and anaphylactic reactions; severe hives and rashes, including shingles; neurological problems like uncontrollable shaking, twitching, seizures, Bell's palsy, ALS, Alzheimer's and paralysis; mental, psychiatric and behavioral changes; a range of vision problems including blindness; decreased hearing and hearing loss; mouth sores, lip sores and burning in the mouth; shortness of breath, difficulty breathing, pulmonary embolism; heart palpitations and other disturbances; digestive problems, liver failure, hepatitis; crippling joint pain; renal or kidney failure; swelling of lymph nodes, some to the size of a golf ball; menstrual problems; and multi-system organ failure (raysahelian.com).

WEIRD

The Internet is abuzz with reports of magnets sticking to vaccine injection sites. Sound impossible? Not according to a 2014 paper entitled "Superparamagnetic nanoparticle delivery of DNA vaccine" (*Methods Mol Biol*. 2014;1143:181-94). According to the authors, "The efficiency of delivery of DNA

vaccines is often relatively low compared to protein vaccines. The use of superparamagnetic iron oxide nanoparticles (SPIONs) to deliver genes via magnetofection shows promise in improving the efficiency of gene delivery both in vitro and in vivo." Another source of magnetism at the injection site might be SARS-CoV-2 Spike protein RBD-coupled magnetic beads, which virologists can order from a catalog and use in the process of "isolating" a virus. "The pre-coupled magnetic beads coupled with biotinylated SARS-CoV-2 Spike RBD protein to streptavidin conjugated magnetic beads. . . can capture the Anti-SARS-CoV-2 antibody or ACE2 protein from cell or serum sample," says the catalog. "This very first SARS-CoV-2 Spike protein RBD-coupled magnetic beads will bring great convenience with minimum non-specific binding and developed protocols. This ready to use products [sic] could greatly save your time and hassle" (antibodies-online.com). However, recovery from injection with superparamagnetic nanoparticles or magnetic beads might be quite a hassle, indeed. According to a 2014 article in the journal *Nature Neuroscience*, scientists have developed a magnetized protein that can activate brain cells "rapidly, reversibly, and non-invasively." The nerve cell proteins ". . . can be genetically engineered so that they become sensitive to radio waves and magnetic fields, by attaching them to an iron-storing protein called ferritin, or to inorganic paramagnetic particles" (*The Guardian*, March 24, 2016). The fact that magnetic nanoparticles could be used to control behavior should discourage us from having any injections, at any time, for any purpose.

NOT WHAT THEY EXPECTED

Really smart researchers at MIT got a surprise when they surveyed "coronavirus skeptics" on why they opposed wearing masks. In a paper entitled "Viral Visualizations: How Coronavirus Skeptics Use Orthodox Data Practices to Promote Unorthodox Science Online," they discovered that the anti-maskers were far from "data illiterate" (science-speak for stupid). Quite the contrary, these skeptics "often reveal themselves to be more sophisticated in their understanding of how scientific knowledge is socially constructed than their ideological adversaries, who espouse naïve realism about the 'objective' truth of public health data." Translation: the mask skeptics know more about the scientific literature than public health officials do. The MIT solution: rather than allow greater public access to the data, public health officials should make public health data more difficult to find! Let's not let the public have access to study results! Those free-thinking anti-maskers "value unmediated access to information and privilege personal research and direct reading over 'expert' interpretations. Its members value individual initiative and ingenuity, trusting scientific analysis only insofar as they can replicate it themselves by accessing and manipulating the data firsthand" (anthropology.mit.edu).

EXACTLY AS PREDICTED

As historians look back on this benighted age, they will cite the practice of giving pregnant women the experimental Covid vaccines as the most shocking example of misplaced faith in allopathic medicine. Many pregnant women have taken the vaccine thinking they will protect themselves and their unborn baby—with the assurance that the vaccine is "perfectly safe"—only to miscarry shortly thereafter. As of May 22, 2021, the VAERS shows almost three hundred cases of "spontaneous abortion" or "fetal death" following the vaccine—and that probably represents the tip of the iceberg. If only. . . if only they had waited for the results of animal trials. In a reproductive toxicity study on the Pfizer vaccine, performed in pregnant rats, researchers observed a doubling of pregnancy loss after the vaccine. The researchers also consistently observed abnormalities in the offspring, such as gastroschisis (intestines outside the body), mouth and jaw malformations, right-sided aortic arch (heart has formed in the wrong direction) and cervical vertebrae abnormalities (ema.europa.eu). As for giving Covid vaccinations to children, a new FDA document reveals that 86 percent of children who participated in a Pfizer Covid vaccine trial reported adverse reactions, some of them serious. These included fever, headaches, chills, vomiting, diarrhea, muscle pain and joint pain. Yet even with an 86 percent reaction rate, researchers went on to give the children their second dose (fda.gov/media/144413/download).

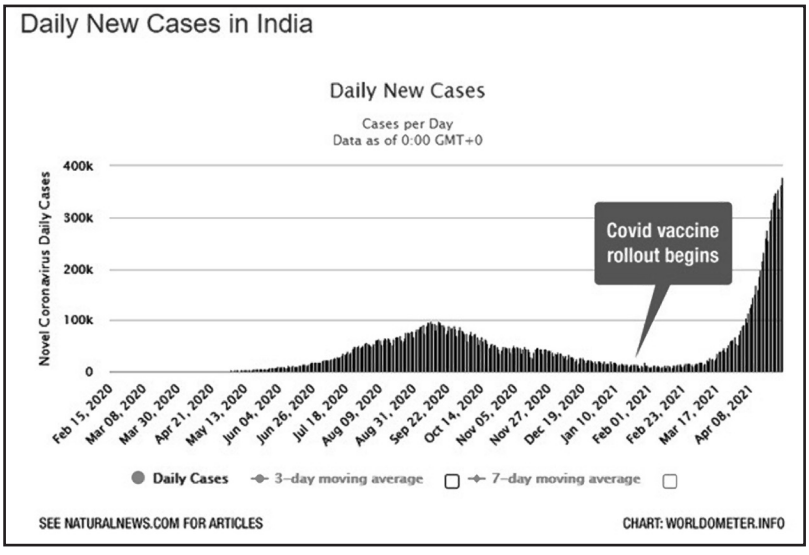
SYMPTOM SIMILARITY

A number of Internet articles have pointed out the similarity of Covid symptoms to those of radiation sickness from microwave EMF, including trouble breathing, red blood cell disruption, nausea, sleep problems and headaches. Another clue that Covid is actually due to radiation poisoning comes

from a study on the use of chloroquine in patients receiving lethal low dose-rate radiation for cancer treatment. The researchers found that administration of the anti-malarial drug chloroquine prior to radiation exposure improved survival and enhanced blood cell recovery *(Int J Radiat Oncol Biol Phys* 2012 Nov 1:84(3):800-806). Similarly, many physicians and hospitals have reported good results by including a form of chloroquine in the treatment of Covid patients (although the powers that be deny any suggestion that the malaria drug might be helpful).

COVID IN INDIA

Covid is raging in India, but since the beginning of the epidemic apparently pre-dates the 5G rollout there in April and May, "it can't possibly be caused by wireless EMF." Not true. Actually, 5G wireless service began in Hyderabad on January 28 (dnaindia.com) and testing commenced even earlier, in the third quarter of 2020 (cavliwireless.com). This coincided with what health officials refer to as the "first wave" of Covid cases. The recent second-wave surge in India coincides with a general, nationwide deployment of 5G wireless. By mid-April, India was recording more than four hundred thousand new cases daily, with many more people younger than age fifty getting sick. Lockdown measures haven't helped. According to one anonymous source, the government has locked down the poorest states, like Bihar and Maharastra, and closed all food markets at the hottest time of the year, with the temperature as high as 120 degrees F. Many are dying from lack of food and water, not from Covid. Another complication is the appearance of infections from a rare group of fungi called mucormycetes, or "black fungus." The infection can infest the sinuses and bones of the face and invade the brain or cause patients to lose an eye. One interesting finding about mold: Dr. Dietrich Klinghardt, MD, PhD, compared a mold plate shielded from electromagnetic fields to an unprotected mold plate exposed to ambient electromagnetic fields. The mold plate exposed to EMF showed a six-hundred-fold increase in the number of biotoxins it produced (it-takes-time.com, July 10, 2015).



SKY-LEMMA

The airlines have led the way in calling for vaccine passports with slogans like "no jab, no fly." But now that blood clots have emerged as a serious side effect of the Covid vaccines—in fact clotting and bleeding problems are one of the main reactions with everyone who gets the shot(s), no matter which brand—the airlines will need to think again. Current airline policy recommends that those at risk of blood clots not fly, or at least fly only under strict supervision. This is because at higher altitudes, those at risk of blood clots have a higher risk of complications, stroke, thrombosis and heart attack. The right thing to do is deny flight privileges to anyone who has had the vaccine, or at least require a statement of nonliability from them, while allowing the unvaccinated to travel in peace. It will be interesting to see what the airlines do about this dilemma!

FOR SCIENTISTS AND LAY READERS

Please note that the mission of the Weston A. Price Foundation is to provide important information about diet and health to both scientists and the lay public. For this reason, some of the articles in *Wise Traditions* are necessarily technical. It is very important for us to describe the science that supports the legitimacy of our dietary principles. In articles aimed at scientists and practitioners, we provide a summary of the main points and also put the most technical information in sidebars. These articles are balanced by others that provide practical advice to our lay readers.

Education • Research • Activism

Wise Traditions 2021

TWENTY-FIRST ANNUAL INTERNATIONAL CONFERENCE OF THE

WESTON A. PRICE FOUNDATION

STAYING HEALTHY IN A TOXIC WORLD

Friday, November 5 – Sunday, November 7
Fundraiser Reception on November 4 & Farm Visit November 8
Allen, Texas

AMERICA'S PREMIER NUTRITION CONFERENCE
Life-Changing Lectures • Practical Classes
Cutting-Edge Nutrition • Traditional Nutrient-Dense Meals
Wise Kids Program • WAPF-Friendly Vendors • Networking

For those interested in improving their health through food, farming & the healing arts.

CONFERENCE SPEAKERS

Del Bigtee of The HighWire and producer of Vaxxed
David Brownstein, author of *A Holistic Approach to Viruses*
Natasha Campbell-McBride, MD, PhD, Gut & Psychology Syndrome
John Carter, founder Aliança da Terra, rancher, conservationist
Griffin Cole, DDS, NMD, Integrative biological dentist
Monica Corrado, *The Complete Cooking Techniques for the GAPS Diet*
James DeMeo, PhD, director of the Orgone Biophysical Research Lab
Sally Fallon Morell, MA, author of Nourishing Traditions
Janine Farzin, of offallygoodcooking.com
Babs Hogan, Med, author of *Strong Choices, Strong Families: A Parent's Guide to Preventing Childhood Obesity*
Mary Holland, presidentgeneral counsel Children's Health Defense
Diana Jabour, BBEC, EMRS, BBNC, expert on building biology
Andrew Kaufman, MD, psychiatrist
Robert F. Kennedy, Jr., chairman of Children's Health Defense
Chris Knobbe, MD, founder and president of Cure AMD Foundation
Brandon LaGreca, LAc, author of *Cancer, Stress & Mindset*
Leslie Manookian, founder of Health Freedom Defense Fund
Kendall Nelson, director and producer of The Greater Good Movie
Greg Nigh, ND, LAc, naturopathic physician & licensed acupuncturist
Larry Palevsky, MD, holistic pediatrician
Gerald Pollack, PhD, author of *The Fourth Phase of Water*
Robert Quinn, founder of Kamut International
Beverly Rubik, PhD president/founder of the Institute for Frontier Science
Stephanie Seneff, PhD, expert on glyphosate
Laura Villanti, FNTP, CGP, ART, AtHomewithWellness.com
Timothy Weeks, DC, author of *Whole Body Health*
Louisa Williams, MS, DC, ND, author of *Radical Medicine*
Will Winter, DVM, expert on pastured livestock
Anke Zimmermann, BSc, FCAH, classical and modern homeopathy

LOCATION AND ACCOMMODATION

The conference hotel is the Delta Hotels by Marriott Dallas Allen 777 Watters Creek Blvd, Allen, Texas 75013. A special conference room rate of $143 per night (plus taxes and fees) has been negotiated for our attendees. This rate is for single and double occupancy and is available only until October 24 or until all rooms are sold. You may book online (see details at wisetraditions.org) or call (469) 675-0800 and mention Wise Traditions.

One-, two- and three-day passes. Exhibit hall and film open to the public.

Children's Program • Monday Guided Farm Visit • Continuing Education Units • Early Bird Discount • Scholarships
For more information, call (703) 820-3333 or visit wisetraditions.org

PRE-CONFERENCE AND POST-CONFERENCE ACTIVITIES

THURSDAY, NOVEMBER 4
6:00 – 9:00 pm
RAW MILK CAMPAIGN FUNDRAISER RECEPTION

MONDAY, NOVEMBER 8
Will Winter, DVM
Professionally Guided Farm Visit

WISE TRADITIONS 2021 REGISTRATION FORM

First Name Last Name Name for Badge

Organization/Affiliation

Address

City State Zip Code Country

Phone Fax ❒ Check here if you are interested in donating food.

E-mail Website ❒ This is my first Wise Traditions conference.

❒ Check here to reserve gluten- & casein-free conference meals. OR ❒ Gluten-free only. OR ❒ Casein-free only. Register for GF and/or CF children's meals below.

DISCOUNTED MEMBERSHIP: become a member of the Foundation while registering and receive a discount.
❒ $30 US Annual Membership (regularly $40) ❒ $40 Canadian/International (regularly $50)

FULL REGISTRATION* includes conference materials, Friday sessions, lunch and dinner, Saturday sessions, lunch and Awards Banquet, Sunday sessions and brunch. Does **not** include Thursday dinner or Monday tour.

	By Sept 19	After Sept 19
❒ Full Registration	$425	$450
❒ Full Registration No-Meal Option *(meals not included)*	$350	$400

WEEKEND REGISTRATION includes sessions with lunch and banquet on Saturday and lunch on Sunday.
❒ Weekend Registration $315 $355

DAILY REGISTRATION includes conference materials, sessions and lunch (no dinner).
❒ Daily Registration ❒ Friday* ❒ Saturday ❒ Sunday $135 $160
❒ Saturday Traditional Diets Seminar, Sally Fallon Morell $75
❒ Monday Guided Farm Visit 7 AM-6 PM (includes lunch) $110

EVENING EVENTS
❒ Thursday Real Milk Fundraiser Reception (not included in above) $50
❒ Friday Dinner and Evening Sessions (included in full registration) $60
❒ Saturday Evening Awards Banquet (included in full and weekend reg) $75

FARM-TO-CONSUMER LEGAL DEFENSE FUND BREAKFAST (Not included in above registration)
❒ One breakfast (donation) $17 ❒ Breakfast for Friday, Saturday, Sunday $45

CHAPTER LEADER MEETING
❒ $25 discount for chapter leaders attending Friday's meeting. -$25

Please select the sessions you plan to attend. This helps us plan but you can change your mind.
Friday Choice – ❒ GAPS ❒ 5G ❒ Homeopathy/Organics ❒ Healing ❒ Vaccine/Aluminum ❒ Broth/Organs
Friday Evening Choice – ❒ Health Freedom ❒ Practitioners Panel ❒ Film
Saturday Choice – ❒ Seneff/Pollard ❒ Traditional Diets ❒ Healing ❒ Holland/Quinn/Cole/Carter
Sunday Choice – ❒ Morell/Kaufman/Palevsky ❒ Brownstein/LaGreca/Jabour ❒ Winter/Hogan/Nigh ❒ DeMeo/Morell

CHILDREN'S PROGRAM (Child must be age 3-12 and potty trained.)
_____Child's Name(s)_____Age(s)_____
_____@ $250 per child for Friday - Sunday includes Friday lunch & dinner, Saturday lunch, Sunday brunch
❒GF/CF meals OR ❒GF only OR ❒CF only for ____ children OR ____@ $150 per child, includes no meals.

CEUs FOR RNs & LACs. A $5 certificate of attendance is available. It suffices for RDs & nutritionists.
❒RN ❒LAc – ❒All 3 days $65 ❒Friday $25 ❒Saturday $25 ❒Sunday $25// ❒RD or nutr. ❒Cert of Attend. $5.

PAYMENT PROCESSING

Total Due:_____
❒MasterCard ❒Visa ❒Discover ❒Am Exp ❒Check/Money Order (payable to WAPF)
Full Name _____
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Exp. Date_____Security Code (3 digits on back of card)_____

CHAPTER LEADERS

❒ I am a chapter leader.
❒ I plan to attend the Chapter Leader Meeting Friday, Nov 15, 9 am-1:30 pm ($20 discount)

How did you hear about the conference?
❒ WAPF journal ❒ WAPF email
❒ Friend/colleague ❒ WAPF postcard
❒ Blog ❒ Twitter or FB
❒ Web advertisement ❒ WAPF website
❒ Print advertisement ❒ Radio
❒ Another conference ❒ Chapter
❒ Other, please specify_____

What is your current occupation?
❒ Medical practitioner ❒ Farmer
❒ Nutritionist ❒ Homemaker
❒ Massage therapist ❒ Student
❒ Chiropractor ❒ Retired
❒ Nurse ❒ Teacher
❒ Agriculture professional ❒ Journalist
❒ Artisan worker ❒ Chef
❒ Other, please specify_____

THREE WAYS TO REGISTER:

1. **PHONE** (540) 722-7104
2. **FAX** (540) 301-3536
3. **MAIL**
   WAPF Wise Traditions Conference
   1900 Jones Road
   Winchester, VA 22602

PLEASE NOTE:
One adult registration per form, please. Forms submitted without payment will not be processed.

FOR FURTHER INFORMATION
wisetraditions.org
registrar@ptfassociates.com

NO REFUNDS will be issued after December 31, 2021.

By submitting this form, I authorize Wise Traditions to charge the applicable registration fees. I understand that all cancellations must be submitted in writing and must be received by October 24, 2021 to be eligible for a refund, less a $25.00 administrative fee. All refunds will be issued following the conference. Substitutions will be permitted at any time. Registration packets will not be mailed and must be picked up on-site at the conference registration desk when you arrive at the conference.

Wise Traditions 2021
Texas Schedule

THURSDAY, NOVEMBER 4

6:00-9:00 PM	Raw Milk Fundraiser Dinner (not included with conference registration)

FRIDAY, NOVEMBER 5

9:00-1:30	Chapter Leader Meeting (chapter leaders who attend get a $25 discount on registration)
9:00-12:15	
Seminar	Natasha Campbell-McBride: GAPS
Seminar	Beverly Rubik: The Perils of 5G
9:00-10:15	Anke Zimmerman: Homeopathy for the Family
10:45-12:00	Bob Quinn: Financial Viability of Organics
12:00-1:30	Lunch
1:30-4:45	
Seminar	Timothy Weeks: Healing through the Power of Nature
1:30-2:45	
Basic	Monica Corrado: Broth and Stocks: Timeless Remedies for Vibrant Health
General	Kendall Nelson: Vaccine Fraud
3:30-4:45	
Basic	Janine Farzin: How to Meet Nutrient Needs with Organ Meats
General	Louisa Williams: Aluminum
6:00-7:30	Dinner
7:30-9:30	
Talk	Leslie Manookian: TBD
Film with Q&A	TBD
Panel	Ask The Practitioner Panel with Natasha Campbell-McBride, Louisa Williams, Brandon LaGreca and others and moderator Sally Fallon Morell

SATURDAY, NOVEMBER 16

6:45-7:45	Movement
7:30-8:15	Sponsor Presentation
9:00-10:15	
Seminar - Basic	Sally Fallon Morell, Nourishing Diets, Part 1
Seminar	Stephanie Seneff: Glyphosate: The Rattlesnack in the Corn Fields, Part 1
Basic	Laura Villanti: Let Food Be Thy Medicine
General	Mary Holland: TBD
11:00-12:15	
Seminar - Basic	Sally Fallon Morell: Nourishing Diets, Part 2
Seminar	Stephanie Seneff: Glyphosate: The Rattlesnack in the Corn Fields, Part 2
Basic	Natasha Campbell-McBride: Vegetarianism Explained
General	Bob Quinn: Studies on Kamut

Wise Traditions 2021
Texas Schedule

SATURDAY, NOVEMBER 6 (continued)

12:00-1:30	Lunch
1:30-2:45	
Seminar - Basic	Sally Fallon Morell: Nourishing Diets, Part 3
Seminar	Gerald Pollack: The Fourth Phase of Water, Part 1
Basic	Anke Zimmerman: Homeopathy for Developmental Disorders
General	Cole Griffin, DDS, NMD: Holistic Dentistry
3:30-4:45	
Basic	Sally Fallon Morell: Nourishing Diets, Part 4
Seminar	Gerald Pollack: The Fourth Phase of Water, Part 2
General	John Carter: The Amazon—What is Really Happening There
General	Chris Knobbe: Omega-6 Apocalypse
6:00-9:30	Awards Banquet Keynote: Robert F. Kennedy: When Money Intersects Public Health Policy

SUNDAY, NOVEMBER 7

6:30-7:30	Movement
7:30-8:15	Sponsor Presentation
9:00-10:15	
Basic	Will Winter: TBD
General	James De Meo: Cosmic Ether and Cosmic Life-Energy
General	David Brownstein: TBD
General	Sally Fallon Morell: The Contagion Myth
10:45-12:00	
Basic	Sally Fallon Morell: Bringing Up Baby
General	Andrew Kaufmann: Virus Myths
General	Brandon LaGreca: Chronic Illness: Building Your Own Treatment Plan
General	Babs Hogan: Cheese
12:00-1:30	Lunch
1:30-2:45	
General	Larry Palevsky: TBD
Basic	Diana Jabour: Building Biology
General	Greg Nigh: Devil in the Garlic
3:00-4:00	Closing Ceremony, Sally Fallon Morell with Del Bigtree

MONDAY, NOVEMBER 8

7:00-6:00	Will Winter, DVM: Professionally Guided Farm Visit

Questioning Covid

By Ilana Nurpi, MD

Children like to play the Game of Why. When they start asking "why," parents become more aware of their own educational role. Some parents answer with pride and some with confidence, while others feel they are not able to satisfy their child's curiosity. Some children miss out because their parents don't have the patience to answer.

People think that children who ask "why" are intelligent. I think when they receive good answers, this encourages them to play this game of asking questions over and over for the rest of their lives. I was lucky enough to have someone answering my "why" questions until I was old enough to look for the answers myself. This attitude gave me the opportunity to do research in medical science and become a physician.

STRANGE CASES

As a physician I practice in Italy. When the rumors about the symptoms of this so-called pandemic were first published, I immediately realized I had already seen one patient in early January with the same syndrome; then I encountered another patient who was similarly affected.

Both patients were in their eighties and both these patients were given antibiotics for the pulmonary problems, but without improvement.

When I examined them I did not hear the typical sound of bronchitis, nor did I notice signs of pneumonia. Thorax x-rays were negative for lobar pneumonia but showed "dirty lungs." There was a diffuse crackle sound, similar to pulmonary edema (water in the lungs), even though the patients did not act as though they were drowning in water, which is the typical reaction to this condition.

Both patients had a low respiratory rate but did not gasp for air. When I consulted with an anesthesiologist friend, he confirmed that Covid patients have a decreased respiratory rate along with low oxygen saturation.

This combination points to a neurological problem, as the normal function of the respiratory center in the central nervous system (the medulla oblongata) is to raise the respiratory rate when oxygen saturation goes below a threshold.

Both patients showed signs of intoxication from neuroleptic drugs (haloperidol) and had soft swellings on arms and/or legs. The first patient had difficulties swallowing, but refused the jellied liquid that the hospitals give for this condition. His initial fever went down in two days, but his little cough persisted and he was unable to bring up any phlegm.

White blood cell counts for both patients were slightly elevated but still within the normal range. Both patients showed a deep deterioration of mobility; they could not even hold a cup. Immobility led to bed sores. Other signs were myosis (contracted pupils), sleepiness and slurred speech.

The first patient was taking beta blockers, an alphalytic for the prostate, and metformin for diabetes (which was discontinued due to the lack of food intake). The beta blockers were also discontinued to help the cough bring up phlegm and because the heart rate was low.

This patient was unable to stay awake. Food intake was extremely difficult—it took several minutes to chew one bite; however, after he was given one orange to eat he could stay awake longer and talk again. It took him several weeks to recover and months to eat on his own.

The second patient eventually passed away, but months after the initial symptoms and after the pandemic was announced.

Naturally, these strange cases made me ask "why." Why did the first patient have these symptoms even though he had no infection? C-reactive

ARTICLE SUMMARY

- All symptoms seen in Covid patients can be explained as neurological impairment of the autonomic nervous system.
- Studies have shown that drugs that inhibit the sympathetic nervous system are associated with a higher mortality rate in Covid patients.
- These drugs, all commonly prescribed to the elderly, include antipsychotics and anticholinergic drugs, benzodiazepines, opioids, barbiturates, proton pump inhibitors, ACE inhibitors and other drugs to lower blood pressure.
- Acetylcholine (ACh) is a key neurotransmitter; after it is released into the synaptic space, it must be removed by acetylcholinesterase. If acetylcholinesterase is lacking, the ACh will remain in the synaptic space and the transmission will not continue.
- Microwaves and 5G affect the structure of acetylcholinesterase. When ACh is not removed for re-uptake by the neurons, the body makes more receptors for the neurotransmitters so that the sympathetic nervous system can work. Ordinarily, this can help us adjust to new electromagnetic influences, but if a person is taking the inhibitory medications mentioned above, the drugs will become toxic since the new receptors will greatly magnify their effects.
- Covid-19 patients need a reactivation of the sympathetic nervous system, which can explain why vitamin C and vitamin D, but also zinc, selenium and hydroxychloroquine seem to be beneficial. Ivermectin seems to mimic the action of acetylcholinesterase, thereby alleviating the damaging build-up of ACh.
- The connection of this illness with the 5G in retirement homes and hospitals must be investigated. Many patients developed Covid-19 symptoms shortly after the installation of new 5G modems in the facility. In Italy, the installation of these 5G modems began in October 2019.
- Younger Covid patients often seem to be either cannabis or opioid users, or are suffering from chronic adrenal insufficiency, often due to either intense sports activity, poor diet, high stress and/or lack of sleep.

protein (a marker for inflammation) was elevated, probably due to the thrombosis on the arm, but what was causing the problem in the lungs? The cough was triggered mainly by drinking or by difficulty in breathing.

The second patient was taking haloperidol, an alphalytic drug, beta blockers and metformin. Later, haloperidol was discontinued due to the muscle stiffness, but still he had all the same strange symptoms as the first patient.

INHIBITORY DRUGS

Even though these patients suffered the same exact symptoms of the new coronavirus described everywhere, no one who took care of them got sick, even without masks and gloves. Why?

Of course, I kept asking why—why was I seeing such strange symptoms? The beginning of an answer came when I received an article, originally written for Spanish physicians, that listed the drugs that significantly increased the mortality rate of the Covid-19 patients. All the drugs outlined in the document inhibit the "fight-or-flight" sympathetic nervous system, including neuroleptics (like haloperidol), anticholinergic drugs, benzodiazepines, opioids, barbiturates, proton pump inhibitors, ACE inhibitors and other medications to lower blood pressure.

In retirement homes and hospitals, most are given antipsychotic drugs to keep them calm. However, the Covid-19 patient needs a reactivation of the sympathetic nervous system.

The common blood pressure drugs also work to counteract the effects of the sympathetic nervous system. Although insulin was not on the list, we know that diabetics are more susceptible to suffer and die from Covid-19, as insulin in fact is known to cause pharmacological stress affecting the nervous system.

THE AUTONOMIC NERVOUS SYSTEM

The somatic nervous system responds to the conscious will to voluntarily move skeletal muscle. In contrast, the autonomic nervous system (ANS) controls those functions that we are not consciously aware of. In very general terms, the ANS has two components: the sympathetic nervous system for "fight or flight" activities; and the parasympathetic nervous system for "rest and digest" (Table 1).

Acetylcholine (ACh) is a key neurotransmitter for our entire nervous system, both central and peripheral—including the ANS. Thus when acetylcholinesterase, the enzyme responsible for clearing the ACh, is not working properly the whole body is affected. To overcome fatal consequences the body makes more receptors to reactivate the nervous system.

We have many examples of drugs and toxins that interfere with the action of cholinesterase enzymes; they are called neurotoxins, causing excessive salivation and eye-watering in low doses, followed by muscle spasms and ultimately death in higher doses. Snake venom and nerve gases are examples of two potent cholinesterase inhibitors, leading to paralysis and death. Many insecticides, such as organophosphates, also act as cholinesterase inhibitors.

The adrenal medulla (the inner part of the adrenal gland) produces neurotransmitters for the sympathetic nervous system, such as adrenaline and noradrenaline (norepinephrine), while the adrenal cortex (the outer part of the adrenal gland) produces corticoid hormones for the parasympathetic nervous system.

When the adrenal medulla is not working, as in Covid-19, this will affect the adrenal cortex as well. Covid-19 patients may be given steroids, but these treat the cortical adrenal insufficiency, not the medulla where the problem is.

NOT CONTAGIOUS

As mentioned earlier, the center for respiratory control is in the medulla oblongata; it is part of the autonomic nervous system and thus dependent on the neurotransmitter ACh and

TABLE 1. Autonomic Nervous System

Sympathetic Nervous System ("Fight or Flight")	Parasympathetic Nervous System ("Rest and Digest")
Increases heart rate	Slows down heart rate
Raises blood pressure	Decreases blood pressure
Diverts blood flow to working muscles	Dilates blood vessels
Releases sugars/fats into bloodstream	Promotes energy storage
Inhibits digestion	Stimulates digestion
Reduces appetite	Increases appetite
Dilates pupils	Constricts pupils

SOURCE: Joel Jamieson, *The Ultimate Guide to HRV Training*. BioForce HRV Precision Performance, 2012.

accompanying clearance by acetylcholinesterase. At the beginning I thought that perhaps some virus was affecting the nervous system—but why was the disease not contagious? The first patient was also cared for in a hospital, where nobody got sick. I myself did not get sick, and no one among the caregivers at his retirement home got sick. Nor did the second patient pass the illness to family members. Nobody involved in his care got sick. Masks and gloves were not in use in those early days.

One public health official in Milan had the task of following family members of Covid-19 patients during the pandemic in March and April 2020—and found that no one got infected.

Bars and restaurants on the highways have remained open, even during the stricter lockdowns of the pandemic peak, but nobody has gotten "infected," despite customers taking off their masks to eat and drink.

I know some young people who did get sick. What they had in common was that they were all cannabis smokers—but no one else in their families got sick. Cannabis is one of the drugs listed in the Spanish document, and we know that cannabis works by blocking the sympathetic nervous system. A worker in a nearby food store got sick—he also was a cannabis smoker—but though he had contact with lots of people, no one he came in contact with got the "virus." Why?

THE 5G CONNECTION

In the early days of Covid, I thought the illness resembled an acute attack of multiple sclerosis or of myasthenia gravis. In both conditions, the problem arises in neuromuscular transmission; both end in respiratory failure, as do other neurodegenerative disorders such as Parkinson's, Alzheimer's and lateral amyotrophic sclerosis (ALS).

While pondering the mysteries of contagion, I watched a video by Dr. Thomas Cowan,[1] in which he said that the pandemic was due to the electrification of the earth, especially the newly deployed 5G technology. I wondered how Wi-Fi could cause such a thing, so I did some research on microwaves and found that 5G was a technology developed over fifty years ago as a weapon to sap the strength of enemy soldiers and take away their power to fight. I also found that 5G affected the ANS.[2]

In my research, I found studies of microwave effects on animals (rats and rabbits) done almost twenty years ago.[3] They showed how animals exposed to microwave radiation produced more receptors for the very drugs mentioned in the Spanish article, such as antipsychotics, benzodiazepines, opioids and others. This explained why so many people in retirement homes were sick, and also explained the sudden deterioration of patients in hospitals where these drugs are broadly used to keep people calm. With more receptors, the same amount of the medication can cause overdoses; if they were not taking inhibitory drugs, the extra receptors actually would have been a helpful response to the microwave radiation.

Although I reference only one article here,[3] many more studies have investigated different combinations of microwave exposure—for short and long periods at low frequencies, or for short periods at high frequencies, or during the night versus the day. Researchers have documented many variations to understand the effects—none of which are good.

When I heard that in the U.S., people were dying in isolation and prevented from seeing even their own children, I decided to speak up about my findings.

Another colleague working in a retirement home said people died once their children could no longer come to feed them because, being so slow at chewing and swallowing food, no one else had the time to help them eat. Old people in the Milan area were literally starving and dying at home because they could not feed themselves.

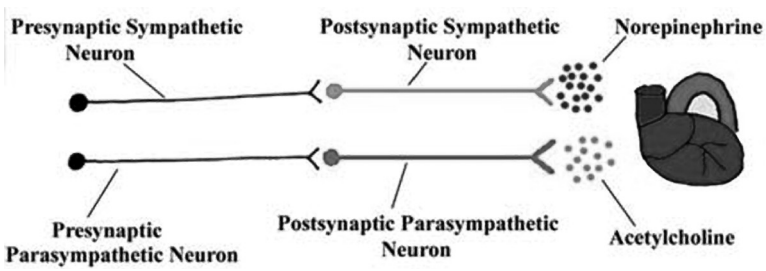
TREATMENTS FOR COVID-19

Why did the orange help the first patient? It is because vitamin C helps to convert dopamine into noradrenaline, which is the primary neurotransmitter of the sympathetic nervous system.[4] The role of vitamin D for Covid patients is explained in the sidebar on page 19.

Another question I asked myself was why hydroxychloroquine is helpful in treating this disease. After all, hydroxychloroquine is an antiprotozoa drug for treating malaria; the protozoa are between ten and twenty-five micrometers (μm) long, while the coronavirus is supposed to be 0.1 μm, more than one hundred times smaller.

There is no evidence that the drug can kill a virus so small, so why does it work? Interestingly, hydroxychloroquine has a side effect on the nervous system that turns out to be benefi-

NOREPINEPHRINE AND ACETYLCHOLINE



This is exactly what the Covid-19 patient needs—a reactivation of the sympathetic nervous system.

cial for Covid-19 patients: hydroxychloroquine stimulates the sympathetic nervous system, and this is exactly what the Covid-19 patient needs—a reactivation of the sympathetic nervous system.[5,6]

An interesting finding about hydroxychloroquine is that it protects cancer patients from radiation therapy.[7] Cancer patients receive ionizing radiation whereas 5G microwave radiation is non-ionizing, so further studies are needed to ascertain the therapeutic role of hydroxychlorquine for non-ionizing microwave radiation.

Zinc also seems to help, which raises another "why." The answer is that zinc is very important and necessary for the nervous system.[8] Selenium, too, has a primary role in nervous system function,[9] and in my opinion, it should be part of Covid-19 treatment as well.

The loss of olfactory function has been widely studied as a preclinical symptom in neurological degenerative disorders such as Alzheimer's disease,[10] Parkinson's disease[11] and myasthenia gravis.[12] The cholinergic pathway—and acetylcholinesterase activity—are common denominators across all of the studies highlighting loss of smell as an early and prognostic factor.[13-15] The sudden loss of smell is recognized as an early symptom in Covid-19.[16] Studies of ivermectin show it to be structurally related to many neurotransmitters, among them ACh. In a 2017 study published in *Scientific Reports*,[17] ivermectin demonstrated a role in removing ACh from the synaptic space, mimicking the action of acetylcholinesterase (the enzyme damaged in patients with the Covid syndrome).

Last but not least, I would like to mention that the nervous system is certainly awakened by sensory stimuli; in the past, to restore consciousness, people used smelling salts. I recommend keeping some essential oils on hand, which can serve the same purpose.

MORE QUESTIONS

Why are young people also getting sick? In my experience, there are two different factors that endanger young patients: use of cannabis or opioids and adrenal exhaustion (so-called chronic adrenal insufficiency). The latter condition is common in young people who practice lots of sports, who experience lack of sleep, or in those who follow a vegetarian or vegan diet. All these factors can lead to adrenal insufficiency, affecting the autonomic nervous system.

This explains why steroids may work, at least temporarily; steroids are synthetic hormones that replace hormones produced by the adrenal glands. We have seen many female patients in their forties who, after recovering from Covid-19, entered early menopause due to (cortical) hormone insufficiency.

Although many of the health care providers using hydroxychloroquine for Covid-19 patients are also giving patients antibiotics, there is no logical reason to do so. This disease does not have a bacteriological or viral origin, and the outcome is just as good or better without antibiotics. In fact, two studies confirm that giving antibiotics like azithromycin does not change the outcome for Covid-19 patients.[18,19] Withholding antibiotics is the wiser course of action unless the patient suffers from aspiration pneumonia, caused by a solid or liquid in the lung, leaving the patient unable to swallow.

Another interesting question has to do with the influence of temperature on the disease. In the beginning, the experts claimed that the virus could not survive temperatures above 73 degrees F (23 degrees C); then they changed it to 80 degrees F (27 degrees C), subsequently lowering it to 64 degrees F (18 degrees C). In any case, one has to ask another "why" question: why were there so many cases in the summertime in Florida and Texas, where temperatures are

VITAMIN B_1 DEFICIENCY?

Interestingly, a recent article suggests that the symptoms diagnosed as Covid-19 are actually manifestations of vitamin B_1 (thiamine) deficiency.[28] Although the author clearly sees how the problems in Covid patients are in the autonomic nervous system—just as I describe in this article—he attributes them solely to a B_1 deficiency.

I believe microwaves are the problem and that vitamin B_1 deficiency worsens microwave effects on the autonomic nervous system. That said, vitamin B_1 supplementation probably would assist nervous system functioning[29] and certainly could be helpful for diabetic patients taking metformin or patients taking diuretics, as both of these drugs deplete vitamin B_1.

much higher than 80 degrees F? The explanation is that going from a hot environment outside to an air-conditioned environment inside—with a temperature difference that can be more than 20 degrees F—represents a constant shock to the adrenal glands, which makes people more vulnerable.[20,21] Many studies show that it is very stressful for the adrenal glands to adjust to such temperature differences. This constitutes more evidence that Covid-19 is a neurological disease. This would explain why there was no fatality among children in prepuberal age—the time when adrenal glands are not so essential for their physiological functions.

But the principal question we should be asking is why 5G causes this ACh problem. Studies on mobile phones and Wi-Fi suggest an answer, showing how microwaves change cholinesterase activity, affecting its capacity to remove ACh from the synaptic space.[22,23] As mentioned above, when ACh is not removed, nervous transmission does not go forward, and when cholinesterase activity is suppressed, the ACh re-uptake by the neurons cannot happen. This lack of neurological function then causes our bodies to create more receptors for all the neurotransmitters needed to keep us alive. This is, in fact, one way that we adjust to new electromagnetic influences—from radio waves to 5G—but if a person is taking medications that are eventually blocking these extra receptors, the drugs will become toxic, as all the new receptors will greatly increase their effect.

The symptoms seen in Covid-19 patients will vary depending on the different combinations of drugs that each person is taking. A person taking beta blockers might have problems with low heart rate and coughing, because beta blockers block the epithelium of the respiratory system; this makes it difficult to get rid of the extra mucous, which will remain stuck in the lungs.

The inability to breathe deeply due to the inhibition of the respiratory center (despite decreasing oxygen saturation), contributes to the accumulation of water in the lungs resulting in the typical crackling sound.

A typical picture of the coronavirus shows a cell membrane with

VITAMIN D

Why do people exposed to sunlight recover before other patients? The answer is that vitamin D is a neuroprotector and modulator of the autonomic nervous system in many ways, some of which (summarized below) were outlined in an article published in *US Neurology* in April 2018.[30]

NEURONAL EXCITABILITY: Loss of neuronal excitability, which occurs with aging, is a proposed cause of cognitive decline. Studies (in rats) show that vitamin D_3 supplementation increases neuronal excitability in the hippocampus.

SYNAPTIC FUNCTIONING: Vitamin D upregulates genes essential for synaptic plasticity as well as those needed for normal synaptic functioning—including receptors for major neurotransmitters such as dopamine, glutamate and serotonin.

DOPAMINE SYNTHESIS: In Parkinson's disease, the observed dysfunction of the substantia nigra (the midbrain region responsible for producing dopamine, the so-called "feel-good" hormone) has been attributed to a decrease in tyrosine hydroxylase (TH) and dopamine synthesis. TH is the enzyme that converts the amino acid tyrosine to dopamine. Studies show that vitamin D supplementation increases TH expression and dopamine production in dopaminergic neurons in the substantia nigra. Vitamin D also upregulates N-cadherin, a protein that plays a mediating role in the creation and development of dopamine neurons as well as in synaptic plasticity and memory.

ACETYLCHOLINE: Treatment with vitamin D_3 increases the activity of choline acetyltransferase and increases ACh levels in brain areas of relevance to Alzheimer's disease. A major risk factor for cognitive decline and Alzheimer's is type 2 diabetes (T2D), which is thought to reduce ACh levels. In animal (rat) models, vitamin D supplementation has produced improvements in T2D-related cognitive decline, with the improvements mediated by increased choline acetyltransferase activity and decreased activity of acetylcholinesterase.

GLUTATHIONE: Glutathione acts as both a neurotransmitter and neuromodulator. Through its action on glutamate receptors, glutathione confers protection against glutamate excitotoxicity. Vitamin D supplementation increases glutathione levels and has been demonstrated to prevent the glutamate toxicity implicated in cognitive decline.

SEROTONIN: Vitamin D responsive elements (VDREs) are found in tryptophan hydroxylase promoter regions. Tryptophan hydroxylase 2 (TPH2) is an enzyme involved in brain serotonin biosynthesis. Research indicates that vitamin D increases expression of TPH2 messenger RNA (mRNA) in the brain, suggesting vitamin D control over brain serotonin levels. In fact, studies point to a role for vitamin D treatment in preventing both dopamine and serotonin depletion in certain areas of the brain.

The principal question we should be asking is why 5G causes an acetylcholine problem.

spikes. Interestingly, those spikes have the exact same shape as the cell membrane receptors for ACh, and a 2D picture of ACh receptors on a cell membrane looks just like a 2D picture of the coronavirus receptors.[24] I am not saying the spikes are just ACh receptors but they are certainly some kind of neurotransmitter receptor.

In his video, Dr. Cowan explained that viruses are actually exosomes. When an expert in RNA viruses and exosomes from Johns Hopkins tried to explain what the coronavirus is supposed to be, he admitted that there is no difference between the coronavirus and an exosome—except that the coronavirus has an "evil" purpose while the exosome does not.[25] Now, since this "evil" virus has not been seen holding a pitchfork in his hand, we do not know whether it is an "evil" virus causing the illness, or 5G microwaves.

JUST NEEDS TO STOP

It is very sad to see how many old people have passed away and how many continue to die. It seems we are unable to stop the destruction. When our wise bodies produce extra receptors to recover from a microwave attack, we should consider avoiding the medications that prevent this healing process. Most people can adjust to 5G, but only if they stop taking inhibitory drugs.

Actually during the past year, I had to reduce or suspend beta blockers for many patients since their heart rates were too low for the regular doses.

Unfortunately, people who are unable to make the extra receptors in response to microwave radiation seem to die very quickly. I witnessed patients with all the Covid-19 symptoms but repeatedly negative to Covid-19 tests, pass away in a couple of days after the onset of the illness.

It is important to notice that this neurological problem can also appear without respiratory or cold symptoms, in which case it resembles an Addisonian crisis. An Addisonian (or acute adrenal) crisis occurs when the body is unable to produce a sufficient amount of noradrenaline and steroids in response to stress. Symptoms include extreme weakness, fatigue and dangerously low blood pressure.[26]

I myself experienced an Addisonian crisis in November 2019, and I literally thought I was going to die. It was the first time in my career I had to ask a colleague to do my shift, because I could not move. I was awake but I felt like my

THERAPY FOR COVID PATIENTS

The overexpression of receptors to overcome microwave toxicity is something we are all experiencing at some level. If the Covid-19 test is actually measuring the density of these receptors, eventually all exposed to 5G will be found positive. However, the old, the fragile and those taking inhibitory drugs are more likely to get sick.

I believe vitamin C and vitamin D—in natural foods such as fresh citrus (vitamin C) and in sunlight and/or cod liver oil (vitamin D)—together are a great help in preventing Covid-19 symptoms, along with a healthy, relaxed lifestyle and some micronutrients such as selenium and zinc. All of the patients I have seen (and those I have treated on the phone) have responded successfully to the therapies I propose below, although these were generally healthy people. For individuals taking many drugs, the solution is more complicated. However, suspending inhibitory drugs as much as possible must be considered.

- Discontinue inhibitory drugs until there is no more sign of toxicity or overdose.
- Avoid EMF exposure.
- Consume a source of natural vitamin C.
- Take cod liver oil for vitamin D and supporting vitamin A.
- Get daily sunshine, if possible.
- Eat foods rich in zinc and selenium (or take supplements).
- Increase vitamin B_1 intake if diabetic or taking diuretics.

The effects of microwaves depend on the duration of exposure and the frequency amplitude—both being factors mostly beyond our ability to control or even check. What we can do is minimize our exposure, especially in the home. Ultimately, I hope the world will find a different way to deal with 5G microwaves. Lockdowns and masks are not useful and actually do more harm than good.

body was sleeping, and when I wanted to move my limbs, it involved the same effort as when someone tries to move an arm or a leg while dreaming in his sleep. As with Covid-19, it was not contagious, of course.

Covid-19 patients, even those with mild symptoms, show decreased sodium and increased potassium levels, confirming the adrenal insufficiency. In the worst cases, the potassium is also low, which in old people is often due to the use of laxatives or diuretics.

The connection of this illness with the 5G in retirement homes and hospitals must be investigated. The first patient I described came from a retirement home where they had replaced the telephone and Wi-Fi system with new 5G modems one or two days before all the residents got sick. Likewise, in another retirement home, they installed new Wi-Fi modems just a few days before the epidemic burst on the scene. A 5G modem was also in the house of the second patient I described.

During the lockdowns, a lot of people got sick while staying at home because they changed their modems to get better Internet. At the same time, a huge number of new 5G transmitters were installed all over the country, including in very small villages. I recently visited a village where 5G had not yet arrived, and no one had contracted Covid-19. In Israel, many religious people fell sick, probably because they decided to have powerful Internet installed at home during the beginning of the first lockdown so they could study and be connected.

In northern Italy, one doctor working in a hospital emergency room during the peak of the illness was arrested for murdering Covid patients by using drugs that inhibited the nervous system; due to these drugs, they passed away.[27]

Many doctors all over the world have noticed that the condition of Covid-19 patients worsens upon intubation, leading eventually to their demise. To intubate a patient (that is, to put them on a respirator), we use drugs that block the neuromuscular transmission—the exact cause of Covid-19 lethality.

Looking back at the history of "viral" infectious diseases, we may remember another plague that affected the nervous system: poliomyelitis. In that case, the problem involved paralysis of limbs, and death was due to paralysis of the respiratory muscles. To help patients breathe, people used artificial lungs that mechanically replaced the respiratory muscle contraction. I think that these artificial lungs could have been of more help for Covid-19 patients and certainly would not have caused the many deaths that resulted from the inhibitory drugs used for intubation.

Another question: When the nervous system is affected by Covid-19, what happens with the immune system? The simple answer is that the white blood cells are our nervous system—our "brain"—in our blood. The neurotransmitters are in our blood circulation, and they affect our immune system; this explains how our emotions can change our immunity, for better or worse.

SOLUTION TO THE ENIGMA

I believe the solution to this enigma was given to me by the son of a patient who survived Covid, who urged me to speak up. "Children must see their elderly parents," he said. "They have to go and put food in their mouths in the most positive and loving way." This is the explanation of every successful therapy—children must go to their parents to help them recover.

In northern Italy, this did not happen; old people were left in retirement homes and from there taken to hospitals or left alone at home. As a colleague mentioned, "Once children could no longer enter the retirement homes to feed their parents, the parents all died." We see people frightened to see their parents, or parents frightened to see their grandchildren, but once they are together and taking care of each other, the fear disappears. Certainly, good advice from a conscientious physician can help, but without the care of their children, old people hardly ever make it.

I cannot stress enough that this disease is not contagious. People should overcome fear and help each other. We should not think selfishly—because once you help your elderly parent, your

L-LYSINE AND COVID

Some clinicians are describing L-lysine (the usable form of the essential amino acid lysine) as another successful Covid-19 treatment.[31] Food sources of lysine include meat, seafood, eggs and dairy products. Among other benefits, L-lysine is known for its anti-anxiety effects through its normalization of adrenal hormones and enhancement of "adrenocorticotropic hormone, cortisol, adrenaline and noradrenaline levels."[32,33]

Research indicates that L-lysine also modulates nitric oxide (NO) production. Impaired NO production can lead to decreased adrenal gland production of the neurotransmitters so critical to the body's stress response.[34] EMF expert and former biochemistry professor Martin Pall theorizes that NO is implicated in "pathophysiological responses to EMF exposure" through a process that results in oxidative stress and free radical production.[35] For these reasons, L-lysine has attracted the attention of individuals suffering from overt electrosensitivity; L-lysine's ability to indirectly limit NO production "should in theory help prevent or inhibit the vicious cycle initially stimulated by EMFs."[36] All of these factors can explain L-lysine's successes in treating Covid-19.

children will learn to do the same with you when you need it. This is just a basic part of being human! I feel the only cure to this pandemic is to rediscover our shared humanity.

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ACETYLCHOLINE AND THE NERVOUS SYSTEM

Acetylcholine (ACh) is a neurotransmitter at various synapses, nerves and at the motor end plate of vertebrate muscles. When a nerve impulse arrives at the nerve ending, ACh stored in vesicles is released and binds to a postsynaptic receptor, causing depolarization. Since ACh is degraded by the enzyme acetylcholinesterase, it has a brief duration of action. Inhibitors of the enzyme, however, prolong the lifetime of ACh. Nerve gases and organophosphates lead to accumulation of ACh and associated toxicity.

In the synaptic cleft, the released ACh will associate with post- and prejunctional receptors and is also subject to rapid hydrolysis by the enzyme acetylcholinesterase into choline and acetate. Over 50 percent of the choline formed will be taken up again by the nerve terminal and reused for neurotransmitter synthesis.

In the autonomic nervous system ACh is the neurotransmitter of all preganglionic and postganglionic parasympathetic neurons. ACh is also present at the level of many brain synapses, in particular in the basal nucleus.

Adrenaline, or epinephrine, has been considered for years the main neurotransmitter of the sympathetic nervous system, although it was known that the effects of its administration were different from those obtained by direct stimulation of the sympathetic. As well as in the medullary part of the adrenal gland, adrenaline is also released at the synapse level of the central nervous system, where it plays the role of a neurotransmitter.

Adrenaline is involved in the "fight or flight" reaction. In general, its effects are: gastrointestinal relaxation; dilation of the bronchi; increased heart rate and systolic volume (and consequently cardiac output); deviation of blood flow to the muscles, liver, myocardium and brain; and increased glycemia.

Noradrenaline, or norepinephrine, is a neurotransmitter released by chromaffin cells as a hormone in the blood, it is also a neurotransmitter in the nervous system where it is released by noradrenergic neurons during synaptic transmission. As a stress hormone, it involves parts of the brain where attention and reaction controls reside. Together with epinephrine, it causes the "fight or flight" response, activating the sympathetic nervous system.

To sum up, the parasympathetic transmission works only on ACh and is called cholinergic, while the sympathetic transmission sees ACh only in the preganglionic synaptic space, which then stimulates the release of noradrenaline and adrenaline neurotransmitters at the end of the reflex pathway, giving it the name adrenergic. Thus if the ACh is not removed by the acetylcholinesterase in the preganglionic cleft, the transmission cannot continue and the adrenergic system does not work.

In cases of emergency (for example, life-threatening circumstances such as hemorrhage or thermal shock), noradrenaline and adrenaline are also made by the adrenal medulla also without the brain stimuli. This emergency stress, if prolonged, may cause exhaustion of the adrenal glands.

ACh is also present in nonneuronal cells. In recent years it has become clear that in the airways, the majority of cells express choline acetyltransferase (ChAT) and contain ACh, including epithelial cells, smooth muscle cells, mast cells and migrated immune cells such as alveolar macrophages, granulocytes and lymphocytes. However, the regulatory role of this nonneuronal ACh in inflammatory airway diseases has yet to be established. I think this can explain the respiratory problem in Covid patients. Furthermore acetylcholinesterase is also present on the membrane of red blood cells where the cell shape is regulated.[37]

The changes in the red blood cell membrane are connected to thrombotic events and the role of zinc and vitamin E have shown a better outcome.[38] Thrombotic events related to organophosphate toxicity (meaning cholinesterase damage) have been widely reported.[39]

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Glyphosate and the Gut

By Stephanie Seneff, PhD

The gut microbiome is a teeming collection of trillions of bacteria, viruses and fungi, which have made the human gut their home. They are dominated by two phylogenetic groups (Bacteroidetes and Firmicutes). Their relationship with the host is symbiotic rather than parasitic, because they perform many functions for the host, producing all sorts of biologically useful molecules that the host cells are incompetent to synthesize on their own.

There are estimated to be 10^{14} microbes residing in the human gut. While it has been widely claimed that they outnumber our own cells by a factor of ten, careful analysis suggests that they may "only" match our own cells one-to-one.[1] Nonetheless, it is undisputed that their collective genome carries more DNA code (information) than ours by a factor of at least one hundred.[2]

A genomic assessment of the human microbiota demonstrates that they collaborate symbiotically to produce thiamin (B_1), riboflavin (B_2), niacin (B_3), pantothenate (B_5), pyridoxine (B_6), biotin (B_7), folate (B_9) and cobalamin (B_{12}), and that these B vitamins can significantly augment vitamins supplied from food. Human cells are incompetent to produce any of these vitamins. Collectively, the microbial colonies contain a large number of enzymes that specialize in various steps in the synthesis of these essential nutrients.[3]

For most of the last century, the gut microbiome was pretty much ignored in research on the human body. This is probably due to the fact that it was functioning well; therefore, we did not notice all the things the microbes were doing for us. In recent years, however, the number of papers on the gut microbiome has exploded. Figure 1 shows a graph of the number of papers per one hundred thousand published in PubMed each year from 2010 to 2020, when the papers are retrieved on the search term "microbiome."

While some researchers claim that animals cannot live without their gut microbes, modern-day experiments have shown that germ-free mice are able to survive, but they need to be supplied with much larger amounts of the B vitamins (B_1, B_6, B_7, B_9 and B_{12}) to maintain good health.[4] Bifidobacteria and lactobacillus are especially important for supplying these vitamins to the host.[2]

Surprisingly, germ-free mice have a much more acute stress response than mice raised in a natural environment. Researchers found that "restraint stress" (a technique used to assess stress responses in animals) caused a markedly increased elevation of plasma adrenocorticotrophic hormone (ACTH) and corticosterone (indicators of stress) in germ-free mice. If the gut of these mice was reconstituted with *Bifidobacterium infantis* early on, this exaggerated response disappeared, but if this reconstitution was delayed to a later stage in development, it was no longer effective.[5] Thus, at least for mice, it is crucial for brain health that the infant acquire a healthy gut microbiome in the first few weeks of life. Commensal microbiota, particularly bifidobacteria, are essential for the postnatal development of an appropriate stress response in mice.

Researchers now widely acknowledge that the gut and the brain are in close communication via the "gut-brain axis," and a lot of this communication involves signals released by the microbes in the gut.[6] Communication happens via the lymph system, via the blood circulation and via the vagus nerve.[7] Many modern diseases are now believed to have their origins in the gut, including autism, depression, multiple sclerosis, Parkinson's disease, Alzheimer's and others.[8]

A seminal paper published in 2016 revealed that gut microbes are essential for maintaining neurogenesis (the creation of neurons) in the

For most of the last century, the gut microbiome was pretty much ignored in research on the human body. This is probably due to the fact that it was functioning well.

ARTICLE SUMMARY

- The gut microbiome is a symbiotic collection of trillions of bacteria, viruses and fungi that produce many biologically useful molecules, notably B vitamins, which host cells are incompetent to synthesize on their own.
- The gut and the brain are in close communication via the "gut-brain axis." Many modern neurological and other diseases appear to have their origins in the gut, including autism, depression, multiple sclerosis, Parkinson's disease and Alzheimer's.
- Animal studies of gastrointestinal dysfunction have produced findings consistent with chronic glyphosate poisoning. Glyphosate likely also plays a role in the modern epidemic of constipation, by essentially paralyzing the gut.
- Research indicates that lactobacillus and bifidobacteria are the classes of gut bacteria that seem to be most sensitive to glyphosate. Studies of infants point to a dramatic reduction of bifidobacteria species in the infant gut in recent decades. Glyphosate is a plausible causal factor explaining this loss.
- An imbalance and/or deficiency in three short-chain fatty acids—acetate, propionate and butyrate—has broad consequences not only on gut health but also on brain health. Glyphosate raises the gut pH, likely reducing the amount of butyrate produced in the gut (which depends on a low gut pH). The best natural source of butyrate is organic butter from grass-fed cows.

hippocampus.[9] Furthermore, the authors demonstrated that antibiotics can have a profound effect on the brain. Antibiotic treatment led to a reduced population of an immune cell type called monocytes in the hippocampus of mice, and this in turn caused a reduction in neurogenesis in the hippocampus, along with impaired cognitive function. However, the researchers found that the effects could be reversed through probiotic supplements and increased physical exercise.

Reading any one of the recent papers on the gut microbiome can be a seemingly overwhelming task. The complexity of the space is enormous, and each person's microbiome is unique, with many species coinhabiting the gut in a symbiotic relationship with one another and with us, their host. Which species take hold depends in part on the microbiome of the mother at the time the child is born. If the birth is through C-section, then the microbes that take up residence in the child's gut resemble more the species that normally inhabit the skin, rather than those that inhabit the gut. This can set the child up for a rough start in terms of achieving a proper homeostasis in the gut.

Breast milk is designed to help nourish the lactobacillus and bifidobacteria that normally thrive in the infant gut, feasting on the lactose and casein in the milk. When solid foods are introduced, the microbiome can change dramatically to accommodate the rich variety of nutrients in the newly introduced foods.

AUTISM AND THE GUT

Perhaps not surprisingly, breastfeeding is protective against autism. A sibling case-control study found an odds ratio for autism of 0.166 for children who were exclusively breastfed early in life.[10] Clinicians are now recommending prebiotics, probiotics and postbiotics as treatment programs for autism.[7]

It is now indisputable that many autistic children suffer from gut problems and that this is almost surely a contributory factor to their autistic symptoms.[7] An inflammatory gut and a leaky gut barrier allow pathogens and toxic microbial metabolites, such as lipopolysaccharide (LPS) and phenolic compounds such as p-cresol, to enter the general circulation, causing a systemic inflammatory response. Alterations in the gut microbiome also contribute to the disease process. Cytokines (inflammatory agents) released by immune cells activate the vagus nerve, altering activity levels in the central nervous system. Bacterial metabolites can breach the gut barrier and subsequently breach the blood-brain barrier, which is also impaired in association with autism. These then induce an inflammatory response in the brain, setting up a chronic low-grade encephalopathy which is associated with mood disorders and cognitive issues.

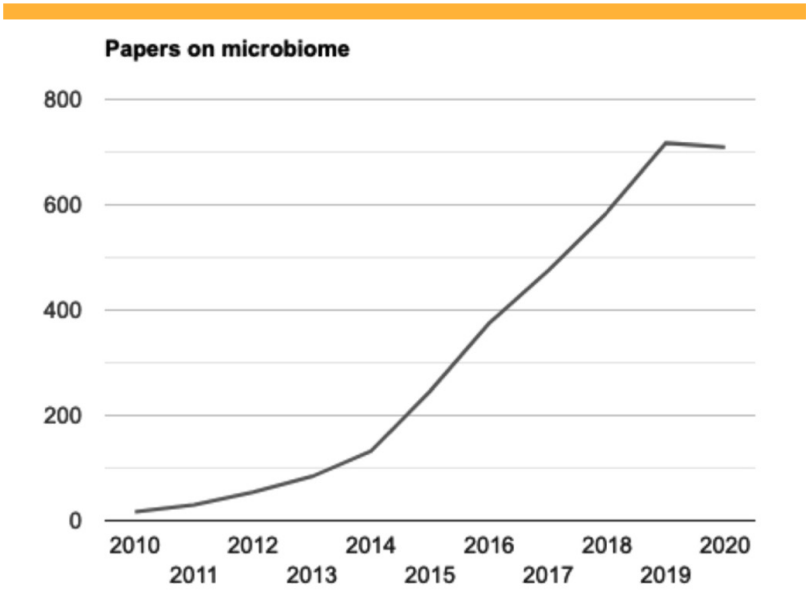

FIGURE 1. Number of publications per 100,000 in PubMed retrieved with a search on "microbiome" (2010–2020)

A remarkable study published by Hsiao and colleagues in 2013 involved inducing autism in the offspring of mice through a process termed maternal immune activation (MIA).[11] They then studied the distribution of microbes in the gut of the autistic offspring and found overexpression of certain Clostridia species that were producing a metabolite called 4-ethylphenylsulfate (4EPS). This metabolite was forty-six-fold higher in the autistic mice than in controls. The researchers noted that it is very similar to p-cresol, which is known to be elevated in humans with autism.[12] Astonishingly, they found that they could produce anxiety in control mice simply by exposing them to 4EPS.

The demand placed on the liver to conjugate these microbially produced phenolic compounds with sulfate interferes with its ability to detoxify certain drugs and toxic metals such as mercury through sulfation. This was demonstrated directly in a study that showed that acetaminophen (Tylenol) was ineffectively sulfated by people with elevated urinary p-cresol sulfate. Sulfation is essential to detoxify acetaminophen, and its toxicity has been linked to autism.[13,14]

GUT BARRIER

The surface of the gastrointestinal tract is made up of a single layer of tightly interconnected epithelial cells. These cells are covered with mucus, a complex biological material that forms a barrier protecting the cells from damage by bacterial enzymes and toxins, and by

extremes in the acid-base continuum. At the same time, it allows passage of gases, nutrients and many proteins.[15]

Mucus consists of highly sulfated "mucins," which are made up of a peptide core to which are attached long chains of sulfated glycosaminoglycans (GAGs). The protective layer is highly viscous and well hydrated; that is, it is a layer of gelled water maintained by the sulfate anions. Under healthy conditions, it forms an excellent barrier that keeps the surface layer of cells safe from attack by any potentially damaging products in the intestinal lumen. The mucins in the colon are especially high in sulfate density, and this is thought to protect them from degradation by bacterial enzymes that can remove GAGs.[16]

THE LOSS OF BIFIDOBACTERIA

A seminal paper published in 2018 by Henrick and colleagues examined trends over time of the pH of the infant gut, going back one hundred years to the 1920s.[17] They started by pointing out that the infant gut microbiome has "important long-term health implications." The authors' working hypothesis was that something in the modern environment was causing bifidobacteria to become much less able to dominate the infant gut microbiome, particularly in "resource-rich" countries. Whereas a paper published in 1913 described the infant gut as an "almost pure culture" of bifidobacteria,[18] today's studies find that the microbial mix in the infant gut is much more diverse. Another marker of the changes are the short polymers of simple sugars called human milk oligosaccharides (HMOs) contained in substantial amounts in human milk. Infants today excrete undigested HMOs in their feces in large amounts.[19]

When Henrick and co-authors plotted infant fecal pH reported in publications ranging in date from the early 1920s to the present, the plot revealed a striking contrast between publications prior to 1980 and those published after 1980.[17] In fact, the data can be fully divided into two quadrants: all publications prior to 1980 showed a fecal pH that was less than 5.5, whereas all those published after 1980 gave a value greater than 5.5, with the highest values (up to 6.5) appearing after 2000. The authors proposed that the pH change was due to a dramatic reduction in bifidobacteria species in the gut in recent decades.

CAN GUT DISORDERS BE EXPLAINED BY GLYPHOSATE?

Glyphosate is the active ingredient in the pervasive herbicide Roundup. The United States, with 4 percent of the world's population, consumes 20 percent of the world's glyphosate. According to the Centers for Disease Control and Prevention (CDC), one in fifty-four children aged twelve years old is now on the autism spectrum. The United States has by far the most expensive health care costs among the industrialized world, yet we rank very poorly in infant mortality, maternal mortality and life expectancy.

Glyphosate was introduced into the food chain in 1974, and the genetically engineered Roundup-Ready crops started to become abundant in 2000. These include corn, soy, sugar beets, canola and alfalfa. Increasingly, glyphosate is also being sprayed as a desiccant or ripener just before harvest on several major crops, including wheat, oats, barley, lentils, garbanzo beans, chick peas, sugar cane, sunflower seeds and other oil seed crops. As shown in Figure 2, inflammatory bowel disease has been increasing in prevalence over time in lockstep with the rise in glyphosate usage on core crops.[20]

Glyphosate kills all plants except those that have been genetically engineered to resist it, and the primary mechanism is through suppression of EPSP synthase, an essential enzyme for the synthesis of aromatic amino acids (amino acids containing a ring structure). While it has been argued that humans are not sensitive to glyphosate because human cells don't make EPSP synthase, this view does not take into account the gut microbiome. Researchers from Europe used a bioinformatics approach to predict the potential impact of glyphosate on gut microbes, on the basis of the specific class of the EPSP synthase enzyme they possess. Conservatively, they concluded that 54 percent of species in the core of the human gut microbiome possess the class I form of the enzyme that is sensitive to glyphosate.[21]

The alteration in the balance of gut microbes in infants today compared to the early 1900s fits well with the observed effects of glyphosate on gut microbes. A study on the effect of glyphosate on poultry microbiota showed that bifidobacteria were the most sensitive to glyphosate of all species studied.[22] This is the species that used to be dominant in the gut of an infant consuming only breast milk. While Henrick and colleagues suggested that the increase in C-section deliveries, the increased use of antibiotics and/or the increased practice of formula feeding might account for the loss of bifidobacteria,[17] glyphosate's direct harm to bifidobacteria is a plausible causal factor. Zen Honeycutt, the founder of the advocacy organization Moms Across America, found glyphosate contamination in several samples of human breast milk, although the agrochemical industry argued that her results were "implausible."[23]

An in vitro study of cells from the gut of both humans and mice by Gildea and co-authors, published in 2017, showed that glyphosate sharply upregulates expression of a protein called zonulin in the gut, which has

a powerful ability to induce a leaky gut barrier.[24] Furthermore, zonulin gets released from a leaky gut barrier into the general circulation, and it then has the ability to also induce a leaky brain barrier.[25]

Overuse of antibiotics has been blamed for the problems we are now encountering in hospitals with untreatable multiple-antibiotic-resistance pathogenic infections. However, a study published in 2021 has shown that herbicide exposure (including exposure to glyphosate, glufosinate and dicamba) increases the levels of antibiotic resistance genes in diverse soil microbes.[26] This likely translates to a similar effect on pathogens that inhabit the gut. This could also help explain why the prevalence of death from intestinal infections in hospital-discharge data is rising in tandem with the rise in glyphosate usage on core crops (see Figure 3).[20]

DIGESTIVE ENZYMES, AMMONIA AND COLONIC pH

Even as far back as the 1970s, researchers were aware that acid-loving species such as lactobacillus and bifidobacteria are important to maintain a healthy gut. Vince and co-authors wrote in 1973: "Increased growth of acidophilic organisms such as lactobacillus and bifidobacteria could depress the growth of putrefactive, ammonia-producing organisms such as E. coli and Bacteroides spp."[27] Lactobacillus and bifidobacteria are the two classes of bacteria that are most sensitive to glyphosate.[22]

Gluten in wheat and casein in dairy foods are both difficult proteins to digest because of their high proline content. Many species of lactobacillus have multiple enzymes that specialize in breaking down proline-rich peptides, so they assist the host in metabolizing these proteins.[28] When lactobacillus species are harmed by glyphosate, these peptides are more likely to remain undigested, leading to the epidemic we see today in gluten and casein intolerance.

A study on rats exposed to different levels of glyphosate over a two-week period revealed a very strong correlation between the pH of the feces and the amount of glyphosate detected in the colon ($R = 0.72$, $p < 0.0001$).[29] The investigators also found a strong inverse correlation between the amount of acetate in the caecum (the first part of the large intestine) and the amount of glyphosate in the caecum ($R = 0.54$, $p < 0.0001$). They proposed that glyphosate interfered with the production of acetate by the gut microbes and that this was likely a major contributor to the high pH of the feces.

The colonic gut microbes break down complex carbohydrates that escape digestion in the upper intestine. These carbohydrates may be familiar to you as "prebiotics," but also as "roughage" and "fiber." Gut microbes convert them into short-chain fatty acids, primarily acetate, propionate and butyrate. As shown in Figure 4, acetate is the smallest fatty acid, with only a single carbon in the chain (CH_3) besides the COOH unit at the end. Propionate adds a second carbon to the chain, and butyrate has three carbons besides the COOH unit.

FATTY ACID BALANCE

The balance among these three, which has important implications for gut health, is strongly influenced by the pH of the gut.[30] In particular, butyrate is extremely important for maintaining a healthy gut barrier. The colonocytes lining the wall of the colon are unusual in that their main source of fuel is normally butyrate rather than glucose. In fact, studies have shown that butyrate promotes the development of the intestinal barrier (protects from a leaky gut) by activat-

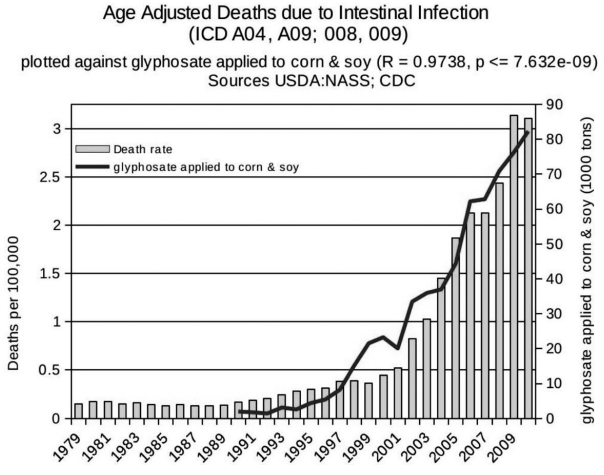

FIGURE 2. Correlation between age-adjusted intestinal infection deaths and glyphosate applications to U.S. corn and soy crops (reproduced from Swanson et al., 2014)[20]

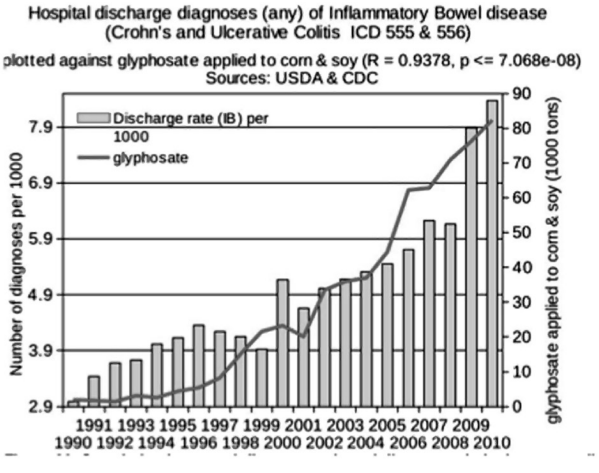

FIGURE 3. Correlation between inflammatory bowel disease and glyphosate applications to U.S. corn and soy crops (from Swanson et al., 2014)[20]

ing a signaling molecule called AMP-activated protein kinase.[31]

On the other hand, researchers have been able to induce autism-like behaviors in mice by exposing them to high levels of propionate.[32] Direct infusion of propionic acid into the brain ventricles of rats caused an inflammatory response associated with an increase in the number of immune cells (microglia) in the brain, as well as immune cell activation.[33] This matches the observed features of the human autistic brain. The combination of an excessive number of microglia due to overabundance of propionate combined with a leaky brain barrier due to glyphosate-induced zonulin is a potent formula for brain inflammation. This also demonstrates the powerful capabilities of the gut-brain axis in linking gut problems to neurological diseases.

An in vitro study of the growth of gut bacteria under controlled pH conditions revealed a remarkable pattern that is consistent with glyphosate's effects on microbial distributions and on pH.[34] A pH of 5.5 strongly favors butyrate production, which was four-fold higher at pH 5.5 than at pH 6.5. Propionate increased by two-fold under the higher pH conditions. These changes corresponded to a remarkable increase in bacteroides at the higher pH, coming to represent on average 78 percent of the total eubacteria present. This is especially interesting in line with the observation that Crohn's disease (an inflammatory bowel disease) is associated with an increase in bacteroides and a decrease in butyrate in the colon.[35] Symptoms of Crohn's include abdominal pain, severe diarrhea, fatigue, weight loss and malnutrition. The effect of pH on butyrate concentration was significant at the 0.001 percent level.[34] Supplying more peptides led to an increase in propionate synthesis, which was also significant at the 0.001 percent level.

One logical reason for a high pH following chronic glyphosate exposure could be the disruption of protein degradation caused by glyphosate infiltration into digestive enzymes. As reported in our sixth paper together,[36] Anthony Samsel and I found remarkably high levels of glyphosate contamination in the digestive enzymes trypsin, pepsin and lipase derived from pigs, which he obtained from a chemistry lab. It is logical that glyphosate is disrupting the ability of trypsin and pepsin to digest proteins, as well as the ability of lipase to digest fats. Undigested proteins would make their way into the colon as peptides (protein fragments), where they would be broken down by the gut microbiome, releasing ammonia.[37] Ammonia has a very high pKa, which means that it would drive the colonic pH up. Acetate (acetic acid), as its name implies, is acidic, so it would lower the pH, but it is reduced by the influence of glyphosate.

A TALE OF TWO COUNTRIES

A study published in 2016 made an astute observation: "A microcosm of the global gradient in immune disease incidence occurs at the border between Finland and Russian Karelia, where there is a 2- to 6-fold higher incidence of allergies and a 5- to 6-fold higher incidence of T1D [type 1 diabetes] and other autoimmune disorders in Finland relative to Russian Karelia."[38]

I suspect that this difference reflects differing degrees of exposure to glyphosate in the two regions. Finnish children are more exposed to glyphosate than their Russian counterparts on the other side of the border, and they have been for years. The use of glyphosate in agriculture, particularly cereal crops, has increased significantly in Finland since 1999. Since 2001, the Finnish government has subsidized farmers for no-till agricultural practices, which use glyphosate to clear the weeds rather than digging up the soil, in order to minimize phosphate run-off into marine waters.[39]

A study of Finnish children at high risk of developing type 1 diabetes revealed that a clear risk factor was the overgrowth of *Bacteroides dorei* in children who later became diabetic, which began when solid foods were first introduced.[40] Another study, which directly compared the Finnish children with the Russian ones, found that only 10 percent of the Finnish infants harboured *Bifidobacterium longum infantis*, whereas Russian infants commonly maintained this strain at high levels in infancy.[38] In a follow-on study published in 2019, these same authors noted a geographical trend of increasing levels of *B. infantis* among feces in children from Finland versus Estonia versus Russia.[41] They suggested that

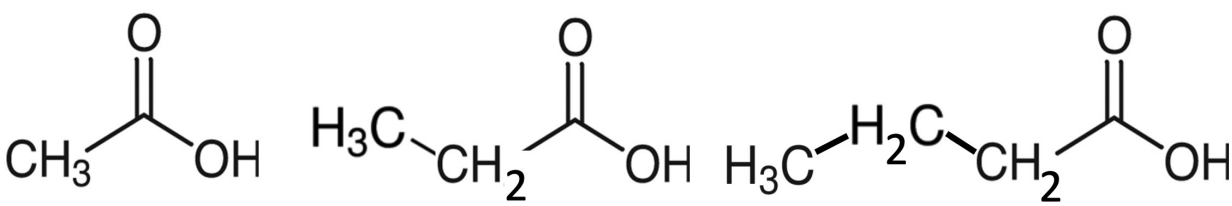

FIGURE 4. Molecular structure of the three short-chain fatty acids: acetate, propionate and butyrate

elevated fecal pH associated with loss of bifidobacteria would promote "inflammation-favoring bacteria and gut dysbiosis." These differences could be a consequence of higher exposure to glyphosate in the Finnish children, due to greater consumption of glyphosate-contaminated processed foods characteristic of a Western diet.

YEAST OVERGROWTH AND AUTO-BREWERY SYNDROME

A fascinating paper, published in 2016, presented a case study of a seventy-one-year-old man suffering from a long history of Crohn's disease. It provides a good model for a kind of "worst-case" scenario for escalating gut issues likely caused by chronic exposure to glyphosate year by year over decades.[42] The man was surgically treated for rectal cancer in 1987 and began to develop recurrent bowel obstructions in 2012, associated with active Crohn's inflammation throughout the proximal small bowel. Diarrhea and bloating were found to be caused by small intestinal bacterial overgrowth (SIBO). Throughout 2013 and 2014, he took repeated courses of antibiotics to keep the bacterial overgrowth in check. However, he continued to lose weight and decided to proactively increase his sugar intake in an attempt to stop the weight loss. He started drinking six to eight sodas a day, as well as eating many sugary snacks. In March of 2014, recurrent diarrhea prompted him to resume antibiotic treatments.

It was in this context that he began to notice foggy thinking and difficulty with walking. His wife noticed slurred speech, and he fell while showering. Upon admission to the emergency room (ER), nothing untoward was noted, and he was sent home. However, symptoms continued to worsen, and the next day he returned to the ER. This time, it was found that his blood ethanol level was 234 mg/dL. (For a point of reference, greater than 80 mg/dL is considered "driving under the influence," and greater than 300-400 mg/dL is considered potentially fatal.) His wife vehemently agreed when he denied having consumed any alcohol for over thirty years.

The explanation for this surprising scenario is that sugar was being fermented to alcohol by resident yeast massively colonizing his gastrointestinal tract. Such a phenomenon has a name: "endogenous ethanol fermentation." It is also called, more imaginatively, "auto-brewery syndrome." All the antibiotics the man was taking had killed off enough bacteria to permit an overgrowth of yeast, particularly candida, fueled by the high sugar intake. Switching to a low-carb diet greatly ameliorated the situation.

Inflammation promotes colonization by candida, and, furthermore, candida delays healing of inflammatory lesions, in a vicious cycle. Various studies have reported that a large percentage of patients suffering from Crohn's disease, ulcerative colitis and gastric and duodenal ulcers—ranging from 37 percent to 86 percent—have an overgrowth of candida in their gut.[43]

Auto-brewery syndrome causes a lot of uncomfortable symptoms, including belching, chronic fatigue, dizziness, dry mouth, disorientation, hangovers and irritable bowel syndrome. It can also lead to anxiety, depression and reduced productivity.[44] Both diabetes and liver cirrhosis lead to a substantially increased production of ethanol in the gut following high carbohydrate ingestion, and the presence of both diseases shows approximately a three-fold increase compared to either disease alone.[45] Both diabetes and liver disease are increasing in prevalence in step with the rise in glyphosate usage.[20] Furthermore, many studies have shown that glyphosate causes inflammation and fatty liver disease in rats exposed to levels below regulatory limits.[46]

Auto-brewery syndrome arises due to the confluence of at least three factors. A shortened or incompetent bowel causes impaired nutrient uptake—such that nutrients linger in the gut, supporting the growth of yeast—and repeated antibacterial treatments lead to a reduction in bacterial species, which provides opportunistic space for yeast. Furthermore, liver disease can cause an impaired ability to metabolize alcohol, so the ethanol produced by yeast remains in the bloodstream much longer, accumulating there.

We have an epidemic today in candidiasis, an overgrowth of candida species in the gut and elsewhere in the body.[47] We have witnessed a dramatic increase in multiple-cause mortality due to fungal infections, from one thousand five hundred fifty-seven deaths in 1980 to six thousand five hundred thirty-four deaths in 1997.[48] Not only candida but also aspergillus and cryptococcus (other fungal species) were involved.

Fungus infection can lead to sepsis, a life-threatening blood disease. The number of cases of sepsis caused by fungi in the United States increased by 207 percent between 1979 and 2000.[49] I am guessing that there has been a continued increase since 2000, but I have been unable to locate a paper that provides statistics on fungal infection during the 2000s.

THE AUTISM GUT AND GUT PATHOGENS

BTBR mice are a special breed of mice that were created through selection of the most autistic-like offspring through multiple generations of mice grown in the laboratory. They now breed true to an autistic-like phenotype.

Many studies have been conducted on these mice, some of which involve a detailed

characterization of disruptions in their guts. A paper published in 2017 looked specifically at gastrointestinal dysfunction in these mice, with several findings that are consistent with what I would predict from chronic glyphosate poisoning.[50] In particular, these mice suffered from a deficiency in bile acid synthesis, which could be due to cytochrome P450 enzyme suppression by glyphosate.[51] They also exhibited serotonin deficiency, impaired peristalsis (slowed gut motility), SIBO and a reduction in acetate levels in the gut.

Other studies have shown that BTBR mice have insufficient heparan sulfate in their brain ventricles[52] and low plasma concentrations of sulfate.[53] In postmortem studies, researchers have also found that autistic children have low heparan sulfate in their brain ventricles.[54] As well, children with autism have low plasma sulfate along with high levels of urinary sulfate, reflecting a flushing of sulfate into the urine.[55] This could be due to the need to conjugate toxic phenolic compounds produced by gut pathogens with sulfate in order to solubilize them for excretion, as I mentioned earlier. In a recently published paper, my colleague Greg Nigh and I showed how glyphosate could be expected to cause impaired sulfate homeostasis, through multiple mechanisms.[56]

A study published in 2013 examined the levels of free amino acids in the feces of three groups of children: autistic children, children suffering from pervasive developmental disorder-not otherwise specified (PDD-NOS) and normal controls.[57] They found significantly higher levels of most of the amino acids in the feces of autistic children compared to normal controls; the PDD-NOS children also had elevated levels, although less dramatically so. This suggests to me that protein metabolism by trypsin and pepsin is impaired, and peptides are then broken down into free amino acids by the colonic microbes and ultimately excreted in the feces. Unfortunately, the aromatic amino acids, in particular, can be transformed into a variety of different toxic phenolic compounds by several strains of clostridia. Such compounds—such as p-cresol, 4EPS, 4-cresol HPHPA (3-(3-hydroxyphenyl)-3-hydroxypropionic acid) and 4-HPA (4-hydroxyphenylacetate)—can disrupt the function of the neurotransmitters that are also derived from aromatic amino acids.

A review paper published in 2018 hypothesized that glyphosate could play a causal role in autism through its disruption of the gut microbiome; specifically, through the increase in clostridia species inhabiting the gut in response to chronic glyphosate exposure.[58] The authors hypothesized that toxic metabolites produced by overabundant strains of clostridia could be disrupting neurite outgrowth in the brain. They made the interesting observation that a woman who attempted suicide through glyphosate ingestion was found to suffer subsequently from *Clostridium tertium* bacteremia.[59] Another paper published in 2019 also suggested that glyphosate's disruption of the gut microbiome could induce an overgrowth of both clostridia and salmonella species; the authors emphasized the neurotoxicity of certain clostridia metabolites.[60]

A very disturbing paper by William Shaw involved a case study of triplets who appeared to have been damaged by glyphosate exposure.[61] The two boys were both diagnosed with autism, and the girl had a seizure disorder. All three were found to have high levels of glyphosate in their urine. The boys also tested high for urinary levels of HPHPA, 4-cresol and 4-HPA. The mother said that non-organic corn tortillas were a major part of their diet. A switch to an organic diet led to a decrease in urinary glyphosate. Another urinary marker, succinic acid, was elevated in the urine in all three triplets. This is an indicator of mitochondrial dysfunction, which has been linked to glyphosate.[62]

These phenolic compounds synthesized by various clostridia species interfere with dopamine-to-epinephrine metabolism in the brain by the enzyme dopamine β hydroxylase. This leads to excessive dopamine in the brain, along with deficiencies in epinephrine.[61] Symptoms of excess dopamine include obsessive, compulsive and stereotypical behaviors, whereas low epinephrine is associated with reduced exploratory behavior and impaired learning in novel environments. An increase in dopamine can be detected through its metabolite homovanillic acid (HVA), which was found at elevated urinary levels in all three triplets.

CONSTIPATION

Constipation has become a serious problem among Americans. Today, constipation affects from 12 to 19 percent of the U.S. population, and the numbers are alarmingly on the rise. In a data analysis for nearly one thousand U.S. hospitals, the number of ER visits for constipation rose 42 percent from 2006 to 2011.[63]

It is likely that glyphosate plays a role in the epidemic we are seeing in constipation. A distinct possibility is that glyphosate is interfering with the ability of the contractile protein myosin to contract, essentially paralyzing the gut. A case study involving another woman who attempted to kill herself by ingesting glyphosate was remarkable for the clear evidence of paralytic ileus as a severe reaction to acute glyphosate exposure.[64] Paralytic ileus is defined as obstruction of the intestine caused by paralysis of the intestinal muscles. Autism and the rigid compulsive behaviors linked to autism are associated with severe constipation with co-occuring intermittent diarrhea.[65]

LESSONS FROM WORMS

One of the diseases that Swanson and co-authors identified as rising in prevalence in tandem with glyphosate usage in the United States is Parkinson's disease. The authors found a correlation coefficient of 0.875 ($p \leq 1.6x10^{-6}$) between the rise in deaths attributed to Parkinson's disease and the rise in glyphosate usage.[20] It is now well established that Parkinson's begins in the gut, where misfolded prion-like proteins appearing first in the gut are transported along the vagus nerve to reach the brainstem nuclei.[66] Damage to the substantia nigra where dopamine-synthesizing neurons are concentrated eventually leads to Parkinson's disease.

In a clever experiment, researchers grew grass and seeds in pots and then placed burrowing earthworms in the pots.[67] They applied glyphosate at half the amount recommended for agricultural use and then observed the earthworm behavior, compared to a control group. They were predicting that, because glyphosate would kill the plants, there would be abundant decaying food at the surface of the soil that would inspire the earthworms to come to the surface to feast. However, they found that the exposed earthworms left castings on the surface much less frequently than the control group did. After three weeks, their castings virtually stopped. It is likely that they had developed a Parkinsonian-like syndrome that immobilized them.

This idea gains support from another experiment involving roundworms.[68] Glyphosate exposure was found to impair their mobility and to specifically damage dopamine-releasing neurons in the roundworms' brains. These neurons are analogous to the dopamine-releasing neurons in the substantia nigra of humans suffering from Parkinson's disease.

A spectacular new study on roundworms was very well designed to address the question of whether the microbes in the gut play a role in neurodenegerative diseases.[69] These roundworms were engineered to overexpress a peptide sequence called polyglutamine, which is known to misfold into a toxic fibrillar prion-like protein that could lead to neurodegeneration. The researchers showed first that the roundworms developed impaired mobility when exposed to pathogens normally found in the human gut, most notably *Klebsiella pneumoniae* and *Pseudomonas aeruginosa*.

Both of these pathogens present major problems today in hospitals due to multiple antibiotic resistance. However, co-colonization with beneficial strains of bacteria that produce abundant butyrate offset the disease process by reducing the amount of misfolded protein in the gut. Supplementation with butyrate was similarly beneficial. Probably the very best natural source of butyrate is organic butter from grass-fed cows. The fact that butyrate depends on a low gut pH, while glyphosate raises the gut pH, implies that glyphosate would reduce the amount of butyrate produced in the gut, which in turn would increase the rate of Parkinson's disease.

CONCLUSION

The human gut is a remarkable organ-system where human cells collaborate with myriad and diverse gut microbes to perform multiple essential tasks assuring an adequate supply of nutrients to the body. However, when the gut is exposed daily to a toxic poison like glyphosate, many aspects of this elegant system break down. A cascading effect occurs when proteins are not properly broken down, and when pathogens outcompete beneficial species, which are more susceptible to glyphosate's damaging effects. A summary of the damaging effects of a high-sugar, high-protein, inorganic diet is shown in Figure 5.

An imbalance and/or a deficiency in three short-chain fatty acids—acetate, propionate and butyrate—has broad consequences not only on gut health but also on brain health. A seemingly simple thing like a rise in pH can have profound effects. A general deficiency in bacteria can induce an overgrowth of candida, which can be further encouraged by a high-sugar diet. Remarkably, this can cause a person to become drunk without ever drinking alcohol.

Parkinson's disease is but one of many neurodegenerative diseases whose origins are found in the gut. Studies on worms exposed to glyphosate can teach us a lot about how glyphosate could be causing an epidemic in Parkinson's disease, which we are experiencing today. Eating a diet that is high in natural organic animal fats, especially butter, will protect you against Parkinson's disease. More generally, switching to a certified organic whole foods diet is a very simple and effective strategy for maintaining a healthy gut and a healthy brain.

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Diet	Dominant Microbes	Microbial metabolites	Gut pH	Short chain fatty acids	Brain
Prebiotics High fat Organic	Lactobacillus Bifidobacteria	Beneficial digestive enzymes	<5.5	High butyrate and acetate Healthy gut barrier	Healthy brain
Protein High sugar Glyphosate	Clostridia Salmonella Candida	Toxic phenols Alcohol Mycotoxins	>6.5	High propionate Inflammatory gut Leaky gut	Inflammation in the brain Leaky BBB Dopamine toxicity

FIGURE 5. Schematic of the effects of a poor diet on the gut microbiome and on the brain

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Hidden Food Ingredients:
The "Industry Standard" Scam that Touches Everyone

By Becky Plotner, ND, traditional naturopath, CGP, D.Psc

It is becoming more and more common for foods to contain chemicals, additives and preservatives that are not listed on the ingredient list. The term "industry standard" is the device that offers a hiding place and makes this possible. When manufacturers use an "industry standard" ingredient in their product, they do not have to list it on the ingredient list.

These hidden ingredients lurk in many different foods. For those of us with sensitivities, or those who care about the food they eat, this poses a real problem because there is no way of knowing what is in the food. Undisclosed ingredients likely are to blame for causing health issues in countless people.

In the honey industry, it is industry standard to label high fructose corn syrup as honey, with a small percentage of honey for flavor.

"INDUSTRY STANDARD" ALUMINUM

In 2018, the authors of a study in *Advances in Experimental Medicine and Biology* wrote about aluminum as a known neurotoxicant, stating that it "contributes to cognitive dysfunction and may contribute to Alzheimer's disease."[1] The study's authors also pointed out that "Redistribution of aluminum out of the brain is slow, so aluminum can be deposited in the brain for a long time."

Nonetheless, food manufacturers have relied on aluminum additives in processed foods for decades. An assessment of dietary aluminum published in *Food Additives and Contaminants* in 1988 reported the major sources, at the time, to be "grain products, processed cheese, and salt."[2] Aluminum in American cheese and processed cheese products is classified as industry standard, and the National Institutes of Health (NIH) considers it GRAS (generally recognized as safe). Items that are classified as GRAS do not have to be added to food labels. Aluminum items that are secretly hiding in our food are also classified as "good manufacturing practice" (GMP).

Processed cheese manufacturers use aluminum in the form of sodium aluminum phosphate (SALP) to make cheese smooth and uniform so that it is spreadable or smoothable into individually wrapped slices.[3,4] The NIH says, "Basic SALP is one of many 'emulsifying salts' added to process cheese, cheese food and cheese spread which react with and change the protein of cheese to produce a smooth, uniform film around each fat droplet to prevent separation and bleeding of fat from the cheese. This produces a soft texture, easy melting characteristics and desirable slicing properties."[5]

Other widely used aluminum additives include:[6]

- ALUMINUM LAKE DYES: Used in cake and cookie decorating. Many times, there is so much metal in a brightly colored frosted cookie, with red and blue sprinkles, that if you put it in the microwave, it will sparkle and crackle just like tinfoil does.
- ALUMINUM SULFATE: Used in canned crab meat, lobster, salmon, shrimp, tuna, pickles and relishes.
- SODIUM ALUMINUM SULFATE: Also used in pickles, relishes, baking powder and flour, including whole wheat flour. In baking powder, it serves as a pH-adjusting agent. In liquid or frozen whole eggs, egg whites and egg yolks, it serves as a stabilizer.
- POTASSIUM ALUMINUM SULFATE: Used as a pH-adjusting agent in ale, baking powder, beer, light beer, malt liquor and annatto (which is often used to color cheese).
- MAGNESIUM ALUMINUM SILICATE: Used in chewing gum as a dusting powder.
- SODIUM ALUMINUM PHOSPHATE: Used as an emulsifying salt in cream cheese spread, processed cheese and processed cheese spread.

Adding aluminum to our food adds aluminum to our body. Aluminum is even more toxic if bound with mercury inside the body.[7] Aluminum does not leave the body with a chelator but instead departs with silica.[8] (A pinch of food-grade diatomaceous earth in water throughout the day can furnish silica.) Aluminum is excreted through the urine.

HIGH FRUCTOSE CORN SYRUP. . .
WITH HONEY FOR "FLAVOR"

Many people who consume honey assume they are getting local honey made by bees. In the honey industry, however, it is industry standard to label high fructose corn syrup as honey, with a small percentage of honey for flavor.[9] It is cheaper this way.

Normally, stored nectar contains pollen; when the nectar turns into honey, the pollen remains as part of the final product. But according to *Food Safety News*, "The FDA isn't checking honey sold here to see if it contains pollen."[10] They found that U.S. grocery stores are "flooded with Indian honey banned in Europe as unsafe because of contamination with antibiotics, heavy metal and a total lack of pollen. . . ." Ironically, many people who have life-threatening honey allergies can readily eat this mass-produced, store-bought "honey" because of the lack of actual honey and pollen in the product.

Local honey is a highly beneficial food, antibacterial and full of enzymes. If obtained

from a reliable source, local honey is a superfood. Industrial honey, on the other hand, is a highly processed form of sugar mostly derived from corn. The easiest way to know whether you are getting real honey is to buy locally, directly from a reputable producer.

"BEEF" AND "NATURAL FLAVORS"

Fast-food chains use industry standard fillers and additives "to enhance the flavor, texture and taste" of beef. A decade ago, consumers filed a class-action lawsuit against Taco Bell, suing the company to change its "seasoned beef" labeling to "taco meat filling" because tests showed that the filling's content was less than 35 percent real beef.[11]

As per the U.S. Department of Agriculture (USDA), "taco meat filling" must contain at least 40 percent meat to be labeled as meat.[11] Greg Creed, Taco Bell's president and "chief concept officer" at the time of the lawsuit, released a statement claiming that the company's seasoned beef recipe in fact contained "88% quality USDA-inspected beef."[12]

After receiving a great deal of critical press, the lawsuit was dropped, and Taco Bell spent millions of dollars in advertising trying to resuscitate its image. One of the company's comeback tactics was to divulge the ingredients in its "seasoned beef" mixture. This disclosure proved that in addition to beef, the mixture included filler ingredients such as oats; various sugars (including cellulose, maltodextrin and dextrose); soy lecithin; citric acid; natural flavors—a label that in its own right can hide thousands of additives—including monosodium glutamate (MSG); another hidden MSG-type ingredient called torula yeast[13] (grown by feeding yeast on wood alcohols); cocoa (to add color); disodium inosinate and guanylate; lactic acid (a pH regulator and preservative); modified cornstarch (a thickener that may use not just corn but wheat, potato, rice or tapioca); salt; and sodium phosphates (leavening agent salts).[14,15]

The company's strategy backfired. Describing Taco Bell's "many, many weird artificial ingredients," CBS reported that "the chain's marketing staff hasn't bothered to notice that its incomprehensibly technical ingredient list makes Taco Bell's menu look like one big food science experiment."[16] Increasingly, discerning consumers know that the long list of ingredients is why fast-food beef doesn't taste like grass-fed beef, why it doesn't contain the nutrient content of grass-fed beef and why one will get hungry faster after eating this "beef."

The term "natural flavors" is understood most easily by looking at how the American biotech company Senomyx (acquired by the privately owned Swiss company Firmenich in 2018) defines it—as an umbrella term that encompasses over eight hundred thousand artificial and natural ingredients. Senomyx uses "proprietary taste science technologies to dis-

The term "natural flavors" is an umbrella term that encompasses over eight hundred thousand artificial and natural ingredients.

BIOTECH FLAVORS AND FETAL CELL LINES

According to the company profile on Bloomberg, Senomyx is an American biotechnology giant in the "consumer staples" sector that develops "flavor and fragrance molecules. . . used by consumer products companies to improve the taste and smell in processed foods and beverages, perfumes, and home care products."[40] Although a cursory Internet search pulls up almost no information about the company itself, there are many entries about Senomyx's controversial reliance on an embryonic human kidney cell line called HEK 293 (originally propagated from aborted fetal cells) to develop its synthetic ingredients.[18]

In 2011, CBS News noted that all but seven of the company's then seventy-seven patents made reference to using the HEK 293 cell line, prompting CBS to conclude that "The company appears to be engineering HEK cells to function like the taste-receptor cells we have in our mouth."[41] The CBS report followed public calls to boycott Pepsi because of the soda company's use of HEK 293-developed artificial sweeteners developed by Senomyx. CBS observed that "Senomyx's work for Pepsi is one of the first times the cells have (potentially) been used to create a food or beverage."[41]

At the time, the pro-life watchdog group Children of God for Life was also drawing the public's attention to the numerous other companies partnering with Senomyx,[42] including Kraft, Nestle, Solae and the Swiss company Firmenich. (Did Senomyx's subsequent acquisition by Firmenich, which is the largest privately owned company in the world, have something to do with the vanishing of information about Senomyx online?) In 2020, the *Irish Sentinel* again drew attention to Senomyx's use of the HEK 293 cell line and published a lengthy list of foods and beverages—ranging from instant noodles to energy drinks to coffee creamers to candy—that include flavoring agents developed with the human fetal cell line.[43]

"Some boxes of Chinese [tomato] concentrate contain up to 55% additives."

cover, develop, and commercialize novel flavor ingredients"[17] and analyzes "millions of potential flavor ingredients annually."[18] Senomyx proudly declares, "We're helping companies clean up their labels."[18]

WHEN IS A TOMATO NOT A TOMATO?

The deeper you look at food, the more you find it may not be pure food. Examples include tomato sauces and tomato products that are not really just tomato.

Almost a third (31 percent) of the worldwide tomato supply comes from China,[19] although ironically, tomatoes feature "sparsely" in the nation's diet.[20] As of 2017, China ranked first in worldwide tomato production,[19] shipping to over one hundred thirty countries, including the United Kingdom, Australia, Germany and Russia. From there, China's tomato products are used by different brand names including Heinz, Unilever, McCormick and Nestle, which in turn ship to the United States, where these products dominate store shelves.[21]

The documentary *The Empire of Red Gold* explains China's role in the global tomato industry in detail.[21] China pays workers for what they pick at a rate of 0.01 Euro per kilo, equaling half a penny for picking and packing a kilo (2.2 pounds) of tomatoes. The work involves pulling the tomato plant out of the ground, removing the tomatoes by shaking the plant, picking them up from the ground and putting them in a large sack. The tomatoes are genetically modified to be extremely durable, which means they do not bruise easily and can fall to the ground unharmed. If you throw one of these tomatoes to the ground, it does not burst but instead bounces. This is a benefit to the low-income workers, who are often women who have babies strapped to their backs or have their small children walking in the fields helping with the work. If the tomatoes are accidentally stepped on by these small children, it does not harm the tomatoes.

The Empire of Red Gold shows how suppliers of tomato manufacturing equipment in Parma, Italy set up production in China many years ago. Italians taught the Chinese how to run the Italian-designed equipment and produce the tomato product.[22] The system was set up as a trade. Silvestro Pieracci, a former trader at the Gandolfi Group, recounts in the film that the deal was, "I give you the machines for production, you carry out your own production, and when you have finished, you give me the products to sell and recover the money for the machines that I have given you."[21]

From that point, the tomato product is shipped in barrels, in shipping containers, overseas to Salerno, Italy. There, the Chinese concentrate is reconditioned by the Italians, who dilute it with water and add salt. *Slate* reported in 2007 that Italian consumers discovered, "[m]uch to their horror. . . that some of the paste on their shelves had come from China, where, as it was pointed out, there were lax controls on sanitation, pesticides, and heavy-metal contamination."[22]

Ordinarily, it takes just under thirteen and a half pounds of tomatoes to cook down to two pounds of tomato paste. Ma Zhenyong is the managing director of Jintudi, one of the biggest Chinese exporters of tomato products. In the documentary, he was giving the producer of the film a tour of the facility when the producer saw a white substance going into the tomato sauce in large quantities. When asked by a translator to identify the substance, the managing director said, "I cannot answer that. This is our recipe. I cannot talk about it. These additives are legitimate. We filed our recipe at the Chinese Goods Inspection and Examination Office. We only add what is filed there."[21]

The white powder contained soybean powder, used as a thickener, as well as other ingredients. However, this substance does not appear on the label.[21] Zhenyong said privately to the translator, "With regards to our production, 80% of the product is the raw material, tomato. In the remaining 20%, there is soybean (thickener), starch (thickener), maltose (sugar). The tomato paste represents 80%. And then, you know, the recipes are not fixed."[21] When the translator told the facility manager that he was only conveying the documentary producer's question and that Zhenyong did not have to talk about it, Zhenyong stated privately to the translator, "The best thing is not to talk about the substances that are added."[21]

The film's producer has stated: "According to my information, some boxes of Chinese

concentrate contain up to 55% additives. It's a method of lowering manufacturing costs since these are cheaper than tomatoes. The reason they can cut their products with soy is because of an agreement with their distributors. The entire production and distribution chain is complicit in this fraud. Only the consumer is fooled."[21]

TRANSGLUTAMINASE (AKA "MEAT GLUE")

Transglutaminase (TG)—also known as "meat glue"—is another hidden ingredient added to meat as well as other foods. Referred to in scientific publications as a protein "cross-linking" agent,[23] transglutaminase acts as a "catalyst" to bond any food containing protein.[24] Transglutaminase also serves as a tenderizer.

In addition to creating "restructured" beef and poultry (think chicken nuggets), meat glue serves as an ingredient in seafood and imitation crabmeat. There is also a part per million (ppm) allowance for transglutaminase in vegetable protein dishes and other meat substitutes as well as dairy products—processed cheese, hard cheese, cream cheese, yogurt and frozen desserts—and even some bakery items.

The International Culinary Center benignly describes transglutaminase as "a naturally occurring enzyme in plants, animals, and bacteria."[25] Transglutaminase is manufactured "either from the blood clotting factors of animals like cows and pigs or bacteria derived from plant extracts"[26] such as streptomyces; the latter is called "microbial transglutaminase."[27] Because animal-origin transglutaminase has an "extremely high" manufacturing cost, microbial transglutaminase has become the food industry's favored biotechnological tool.[27] The European Union (EU) banned animal-derived meat glue in 2010 due to safety concerns but still allows microbial transglutaminase.[28,29]

The USDA states that it has "mandatory labeling requirements" for transglutaminase enzyme in meat, egg and poultry products, but journalists have noted that "they don't always have to write the word out in such clear terms," adding that for bread and dairy products, "the label may be [even] less clear."[28] The German law firm Gorny Law has described the EU's legal reasoning regarding labeling, stating that because transglutaminase "is a processing aid in a legal sense," it "is not an ingredient and under current law must not be labelled in the list of ingredients."[24] The German lawyers also assert, "As soon as the substrate used during production is depleted, the enzyme will be inactive and does not function in a technological manner in the finished foodstuff even though it may still be present."[24]

Chefs and meat processors are very familiar with transglutaminase as a common ingredient used to take lesser cuts of meats and literally glue them together for resale as a higher cut of meat or to "create a product of desirable size and form."[30] Using meat glue also allows them to create checkerboard meat, with dark meat and light meat literally glued next to each other (think turkey bacon). So widely accepted is meat glue that the International Culinary Center's blog for chefs (called *Cooking Issues*) refers to the practice of using transglutaminase as just as acceptable as any other enzyme-catalyzed cooking process, such as using starches to brew beer or rennet to make cheese.[25] However, European lawmakers involved in the 2010 decision to ban meat-derived transglutaminase stated that "consumers in Europe should be able to trust that they are buying a real steak or ham, not pieces of meat that have been glued together."[30]

The process of using meat glue is simple: Take otherwise discarded meat pieces, coat or sprinkle them with meat glue, mix well, roll the meat product in a sheet of plastic wrap and refrigerate overnight. The International Culinary Center praises this use of plastic wrap, stating: "The plastic wrap technique is great because there are no rules regulating its use, and it is simple, fast and cheap; foods can be cooked in water directly in the plastic wrap."[25]

The result is a new cut of meat that is unrecognizable as an impostor. When you pull on the meat, it does not separate and responds as

BEYOND RESTRUCTURED MEAT

Food scientists note that transglutaminase has many applications in the meat industry beyond its contributions to "restructured meat." None provides reassurance to those eating a Wise Traditions diet. The authors of a 2014 review state: "The application of transglutaminase has created new technological opportunities for producing fine and coarse-minced sausages, Vienna sausages and smoked meat. Instead of high-quality meat, lower quality raw materials and additives, such as skimmed milk powder, soy or wheat flour, can now be used to manufacture these products. The impact of the enzyme on the proteins of these raw materials yields products which do not differ in appearance, texture, odour, taste and nutritional value from analogical products made exclusively of high quality meat."[27]

Transglutaminase has also helped the food industry produce processed meats with a lower fat content: "[I]n this case, sodium casein treated with transglutaminase replaces previously extracted animal fat."[27] Not to worry, say food scientists. "Products with fillers do not differ in their organoleptic properties [in other words, taste and mouthfeel] from conventionally processed meat."[27]

a normal piece of muscle tissue. Even when cut, the meat responds exactly like a piece of ordinary meat. In fact, the meat-glued product looks, feels, cooks and tastes like the cut of meat it is pretending to be—with the difference going unnoticed even by professional chefs. However, a "culinary physics" blog notes that, unlike gelatin, transglutaminase "doesn't melt when heated."[31]

Interestingly, when meat glue is bonding, it produces molecules of ammonia. A New York State Health Department document describes ammonia under the subheading of "Chemical Terrorism"—specifying that "Ammonia is also produced naturally from decomposition of organic matter, including plants, animals and animal wastes."[32] In the cooking world, the ammonia resulting from the meat glue process is seen as a plus. The rule of thumb that chefs use to assess whether meat glue (some forms of which have an unrefrigerated shelf life) is still good to use is to glue a few pieces of meat together and smell the meat while it is still moist. If the meat smells like a wet wool sweater or wet dog, it is still good. This smell comes from the ammonia.[25]

The International Culinary Center grudgingly concedes that "some studies have shown that stomach enzymes have difficulty breaking down proteins after they have been bonded by TG."[25] The Center goes on to say, "When TG-ases are improperly regulated in the body, they are associated with very bad things like the plaques in the brains of Alzheimer's, Parkinson's, and Huntington's disease patients as well as in the development of cataracts in the eyes, arteriosclerosis (hardening of the arteries), various skin disorders, etc."[25] However, despite studies linking meat glue to attention-deficit/hyperactivity disorder (ADHD) behaviors, gluten sensitivity,[33] celiac disease,[34] dementia[35] and other diseases,[36] the Center asserts that these problems arise from inherent physiological imbalances rather than consumption of meat-glued foods.[25]

The 2010 book *Ideas in Food*[37]—part guidebook, part recipe book—provides "detailed usage guides for the pantry staples of molecular gastronomy," including "staples" such as transglutaminase and xantham gum.[38] The authors note how the "efficiency" of transglutaminase blends "can be improved with the addition of gelatin, caseinate, potassium chloride, and fiber," which "are sometimes added. . . to facilitate the bonding process." They add that "Salt and phosphates also increase the effectiveness of transglutaminase by increasing the availability of salt-soluble proteins."[37]

The addition of caseinate (a compound derived from casein) to transglutaminase blends is particularly concerning given the prevalence of casein intolerance, with celiac patients and autistic children the primary victims of this type of intolerance. Initially, avoiding casein may seem navigable through the elimination of milk products such as cheese, yogurt and ice cream—but when products such as medicine gel caps and "restructured" meat and fish are added to the list of casein-containing products, avoidance becomes not only more complicated, but disheartening.

KNOW YOUR FARMER AND BUY LOCAL

In late 2019, the Weston A. Price Foundation launched its "50% Pledge," encouraging people to spend at least 50 percent of their food dollars with local farmers and food artisans, especially those producing high quality eggs, poultry, meat, produce, raw milk and raw milk products.[39]

With the growing attempts by industry to push consumers into eating synthetic and fake foods, and growing awareness of the "industry standard" ingredients lurking in foods without appearing on food labels, this commitment to buying from high integrity, small- and medium-scale local producers is more important than ever. Buying from local farmers who keep animals on pasture, do not chemical-treat their vegetables and sell honey straight from the bees is the optimal way to feed your family.

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Foodways of the Australian Outback

By Sally Fallon Morell

"The *Weekly Times* Pioneer Recipe Competition was launched in 1972. . . and it was an immediate success. Housewives have sent in thousands of recipes, handed down to them by mothers, grandmothers and great-grandmothers, and this book is a selection of the prize-winning dishes from the competition."

So begins *The Pioneer Cookbook*, a gift to the Foundation from Australian member Joy Stone Bendigo. The recipes therein epitomize the diets of English-speaking and European countries right up to the Second World War: plenty of meat, organ meats and broth, but also tons of sugar.

One contributor, a Mrs. T.B. Long, accompanied her recipes with a letter of recollection: "I grew up in a district peopled by children and grandchildren of the original settlers. Half the houses still cooked in colonial or camp ovens. Iron saucepans and oval boilers were commonplace. Women made the bread, the butter, jams and pickles. Meat was killed, fresh meat was roasted and the rest was pickled and boiled. The diet seemed to be cold meat, bread, potatoes and any vegetables available. Puddings were jam and custard tarts, apple pies, roly poly, milk custard puddings. . . boiled fruit puddings in cloths, and steamed puddings with jam or golden syrup in bottom of basin."

The colonial housewives made their own butter and cooked in clarified beef or mutton drippings. One recipe contributor recalled how her grandmother boasted that everything on her table was home-produced except the sugar, flour, pepper, salt, tea, coffee and kerosene.

RECIPES FEATURING OFFAL

The ninety-six-page book starts with soups and broth, including Lamb's Head Soup, Sheep's Head Broth, Kangaroo Tail Soup and Scotch Broth, which calls for two pounds of "scrag and neck of mutton" or two shanks of mutton. The Bacon Soup looked interesting so I gave it a try—it was easy and delicious.

Between the Soup and Meat chapters, we find a grab-bag collection called Snacks, which includes recipes containing potatoes, cheese, eggs, sausages and—most importantly—organ meats (see recipes).

A popular dish in both Australia and New Zealand is Lamb's Fry, served on the day the farmer butchered a lamb. Technically, Lamb's Fry is lamb offal freshly plucked from the butchered lamb—such as the testicles, liver, sweetbreads, heart, kidneys, and sometimes the brain and abdominal fat—or some combination of these. In Australia and New Zealand, lamb's fry refers specifically to the liver and sometimes the kidneys. The farmer then covered the meaty carcass with a cloth bag and let it hang overnight. The shoulder roast or leg, baked with cut-up vegetables in the pan, was served for Sunday dinner. Leftover meat provided meals in the form of curry, shepherd's pie, hash and cold meat during the ensuing week.

The Lamb's Fry recipe in *The Pioneer Cookbook* features kidney cut into strips, dredged in flour, cooked quickly in butter and served in a sauce containing mushrooms, stock and sherry—a true gourmet dish from the camp oven!

An intriguing Kidney Pudding calls for minced kidneys with suet, mixed with breadcrumbs, parsley, beaten egg, milk and seasonings, steamed in a greased dish and served with a "rich, brown gravy." A great way to make offal taste good!

Brain Potato Pie mixes chopped sheep's brains with white sauce, egg, parsley and mashed potatoes, topped with seasonings and grated cheese, and baked in a casserole.

Lamb and mutton are the main ingredients in the Meat Dishes chapter, with several recipes for leftover cold meat, such as Savory Meat Dish, which makes a cheese-topped casserole of diced cold meat. Leftover pork and mutton feature in a two-page chapter called Pies—all of them meat pies.

Salads were rare in the Outback—the book devotes just one page to raw vegetables, dressed in salad dressing or mayonnaise in which butter, not vegetable oil—serves as the fat.

THE SUGAR DELUGE

After salads we get three pages of rabbit recipes. . . and then the deluge: almost fifty pages of puddings, tarts, cakes, biscuits (cookies), jellies, jams and candies. At least these contained natural fats such as butter and tallow. Settlers' Birthday Cake calls for two cups of meat drippings creamed with two cups sugar, to which is added six eggs (or one emu egg), flour, milk, seasonings and currants.

The pickle and chutney recipes are also loaded with sugar, the practice of lacto-fermentation long forgotten. Ditto for the beverages, including one of the strangest recipes I have ever encountered: Parsnip Wine. If anyone has the courage to try this recipe, we'd like to hear about the results.

> Take 15 pounds of sliced parsnips and boil until quite soft in five gallons of water. Squeeze the liquor well out of them, run it through a sieve and add three pounds [!] of coarse lump sugar to every gallon liquor. Boil the whole for three-quarters of an hour. When it is nearly cold add a little yeast on toast. Let it remain in a tub for 10

CAMP OVEN COOKING

Versatile and indestructible, camp ovens could sit directly in the fire or hang above it from a pole. Their massive lids kept heat in and provided a flat surface with a ridge around the edge, which made it possible to heap hot coals on top of the pot; turn it over and you had a griddle for pancakes. A sturdy iron rod made it possible to lift the heavy lid from the pot. The feet allowed for stacking multiple ovens, which came in a variety of sizes and shapes. The ovens were perfect for making broths and tender stews but also served as vessels for baked goods.

days, stirring it from the bottom every day. Then put it into a cask for a year. As it works over, fill it up every day.

VINTAGE PRODUCTS

The Pioneer Cookbook contains vintage ads for Pears Soap, Lee & Perrins Sauce, Bird's Custard Powder, something called "malted, farinaceous food for infants and invalids" (could that be sprouted flour?) and Benger's Self-Digestive Food, a powder for mixing with warm milk, described as "an entirely new article of diet for infants, invalids, dyspeptics and all of weak digestion."

The Internet provides us with a description of this entirely new article of diet.[1] "Benger's Food was a commercial food powder to be mixed with milk that was popular in the first half of the 1900s. It was a bit more scientific than Ovaltine, however, as it was made with 'wheat-flour and an extract containing the digestive ferments of the pancreatic juice.' The digestive enzymes, when added to milk and heated, would start to break down the starches in the wheat into sugar and pre-digest the milk. The drink was allowed to sit for anywhere before 5-45 minutes before consumption, depending on the need of the patient. While earlier medicines based on digestive enzymes were available, this was the first popular product that treated them as a dietary supplement that anyone could purchase and use." The product disappeared around 1960.[1]

There are also two ads for cocoa, and both tout something called "homeopathic cocoa." Was this a homeopathic remedy made of cocoa, or some special way of preparing cocoa powder? The ads do not make this clear. I could find no Internet information on this one.

THE DISPLACING FOODS OF MODERN COMMERCE

When Weston Price visited Australia in 1936, he wrote, "I have seldom, if ever, found whites suffering so tragically from evidence of physical degeneration as expressed in tooth decay and change in facial form, as are the whites of eastern Australia."[2] However, a 1950s photograph of school children from the Outback indicates that these descendants of pioneer families still retained fairly good facial structure.

University of California endocrinologist Dr. Robert Lustig, author of the new book *Metabolical: The Lure and the Lies of Processed Food, Nutrition, and Modern Medicine*,[3] stated in a 2009 presentation (titled "Sugar: The Bitter Truth"): "Weston Price, perhaps the most famous of all dentists. . . said that sugar was the primary driver of chronic oral disease, whether it be periodontitis or dental caries."[4]

Commentators from the medical profession often sum up the work of Dr. Price in this way. But this is only half of Dr. Price's message. As Price himself stated, "Our difficulty is that we are adding too much white flour and sugar *and* do not get enough of the foods that carry the minerals and vitamins [emphasis added]."[5] Throughout the nineteenth century and possibly until at least the mid-twentieth century, the Australians of the Outback consumed nutrient-dense foods like organ meats, animal fats and eggs; and even in the 1950s, most country households had a house cow and drank raw milk.

Sugar in the diet is never good, but it's when sugar and other processed foods *completely displace* the nutrient-dense foods of our ancestors that we get into real trouble!

FACIAL STRUCTURE AS OF THE 1950s

Outback school children retained good facial structure despite the sugar, thanks to consumption of nutrient-dense animal foods, including organ meats, animal fats, eggs and raw milk.

LAMB'S FRY

One lamb's fry (see note)
Seasoned flour
1 large onion, sliced
4 level tablespoons butter
1 1/2 cups sliced mushrooms
1/4 teaspoon chili sauce (could be Tabasco sauce)
1 cup stock
2 tablespoons dry sherry
2 tablespoons chopped parsley
½ cup sour cream

Note: The recipe instructions indicate that in this recipe, "lamb's fry" means kidneys, but the recipe would work equally well for liver.

1. Remove skins from the lamb's fry and cut the meat into half-inch strips. Coat in flour.
2. Brown onion in melted butter, add lamb's fry and brown.
3. Add mushrooms and saute until limp.
4. Add chili sauce, stock and sherry. Simmer gently for five minutes.
5. Thicken if necessary with extra seasoned flour. Season to taste.
6. Serve sprinkled with parsley and top with sour cream. Garnish with lemon wedges.

KIDNEY PUDDING

4 sheep kidneys
1 ounce suet
2 1/2 cups breadcrumbs
1 teaspoon chopped parsley
Pinch nutmeg
Salt and pepper
1 egg
1 cup milk

1. Skin the kidneys and mince them finely with the suet.
2. Mix with breadcrumbs, parsley, nutmeg, salt and pepper, beaten egg and milk, and pour into a greased basin.
3. Steam for 1 1/2 hours and serve with a rich brown gravy.

BRAIN POTATO PIE

2 sets sheep's brains
1 1/2 cups white sauce
1 egg
1 teaspoon chopped parsley
4 cups mashed potatoes

1. Beat egg and mix into potatoes. Line a casserole with the potatoes.
2. Chop brains and mix them with the white sauce. Pour this into the casserole with the chopped parsley.
3. Cover with more potatoes.
4. Sprinkle with salt, pepper and grated cheese and bake at 350° for about 30 minutes or until golden brown.

BACON SOUP

Half pound bacon pieces
2 pints chicken stock
1 medium carrot, grated
1 medium onion, cut up
1 medium beet, grated
Half pint (1 cup) cream

1. Put all ingredients into a saucepan.
2. Boil for 1 1/2 hours.

SAVORY MEAT DISH

2 cups cold meat, cut up
1 tablespoon chopped parsley
1 tablespoon finely chopped shallot or onion
1 tablespoon green tops of shallot or onion, chopped
1/2 cup fresh breadcrumbs
1 cup cooked vegetables
3 eggs
3 cups milk
1 cup shredded tasty cheese
1 cup crustless cubes of bread [cooked in] butter
Cayenne pepper

1. Mix together breadcrumbs, shallot or onion, parsley and vegetables. Season with salt and pepper.
2. Cover the bottom of a greased casserole dish with the breadcrumb mixture, then add the diced meat.
3. Beat eggs lightly and pour in milk. Season with salt, pepper and green shallot tops.
4. Pour egg mixture over top of meat, then strew bread cubes on top.
5. Sprinkle with grated cheese and dust with cayenne.
6. Stand casserole in a dish of water and bake for about 45 minutes in a moderately cool oven (around 300°F). Serve with peas and mashed potatoes.

Sally Fallon Morell is founder and president of WAPF, editor of Wise Traditions*, owner of New Trends Publishing and author of many books. Her most recent (co-authored with Tom Cowan) is* The Contagion Myth: Why Viruses (including "Coronavirus") Are Not the Cause of Disease.

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Reading Between the Lines

By Merinda Teller

Are Explanations for Lyme Disease Another House of Cards?

It has been over four decades since Connecticut health officials—investigating fifty-one child and adult residents of Lyme presenting with uncommon arthritic symptoms—formally concluded, in 1977, that they were witnessing the birth of a new illness.[1] By 1987, the condition (named after the Connecticut location where it emerged) had progressed from a localized medical curiosity to a nationally reportable disease, meaning that American doctors had to report "any and all cases" to local and state health departments.[1]

Currently, the Centers for Disease Control and Prevention (CDC) receives reports of approximately thirty to forty thousand Lyme cases annually, a quadrupling since the 1990s.[2] However, the CDC states that this figure likely represents a dramatic underestimate of Lyme's true incidence, suggesting it could be as much as fifteen times higher.[3] The vast majority of reported Lyme cases (95 percent) in the U.S. come from fourteen states in the Northeast and upper Midwest.[4] Internationally, "information seems to support the occurrence of Lyme disease" in eighty-plus countries, although the Lyme Disease Association notes that officials in many of these locations are "reluctant to declare Lyme disease present."[5]

NON-SPECIFIC SIGNS AND SYMPTOMS

From the outset, the condition labeled as Lyme disease has been perplexing and frustrating—both for those experiencing the weird panoply of difficult-to-pin-down symptoms and for those attempting diagnosis or treatment. Clinicians acknowledge that "Lyme" symptoms are little different from those seen in hundreds of other medical conditions.[6]

According to the CDC, early-stage "localized" Lyme "may"—but often does not—involve a rash, which "may" take on a bulls-eye conformation. (Lyme specialists nevertheless deem the bulls-eye rash as a "classic" feature of the illness.) At this stage, there "may" also be nonspecific flu-like symptoms such as fever, chills, headache, fatigue or achy joints and muscles.[7] Later signs and symptoms (called the "disseminated" stage) "may" include rheumatologic, cardiac or neurologic manifestations such as arthritis, heart palpitations, nerve pain, facial palsy, brain or spinal cord inflammation or severe headaches.[8] About one in eight Lyme patients (12 percent) "may" display neurologic or neuropsychiatric symptoms.[9] Clinicians warn that the latter can emerge months to years down the road, resulting in "possibly irreversible mental illness."[10]

The many conditions that overlap with Lyme symptomatology range from influenza and cellulitis to other hard-to-differentiate autoimmune ailments such as fibromyalgia, rheumatoid arthritis and multiple sclerosis.[11] The lack of a clearcut disease profile is also evident in the International Lyme and Associated Diseases Society's vague definition of chronic Lyme disease: "a multisystem illness with a wide range of symptoms and/or signs that are either continuously or intermittently present for a minimum of six months." [12]

THE CAUSALITY QUESTION

In the early 1980s, infectious disease specialists did not take long to rally around the explanation that Lyme was a tick-borne illness, pointing the finger at a particular spirochete harbored by a particular genus of tick. Spirochetes are any of a group of spiral- or corkscrew-shaped bacteria widely distributed in nature.[13] The Lyme spirochete was named *Borrelia burgdorferi* (*B. burgdorferi*) in 1983 after William "Willy" Burgdorfer, the Swiss-born National Institutes of Health (NIH) medical entomologist credited with discovering it.[14]

As the NIH now tells it, Burgdorfer and colleagues at the National Institute of Allergy and Infectious Diseases (NIAID) Rocky Mountain Laboratories discovered in 1981 that the spirochete later named *B. burgdorferi* was the cause of "the mysterious Lyme disease."[14] (As an interesting historical footnote, Switzerland—Burgdorfer's country of origin—was the first nation outside the U.S. to jump on the Lyme bandwagon, also reporting "Lyme arthritis" in 1981.[15])

In 1982, Burgdorfer's group published a three-page paper in *Science* ("Lyme disease—a tick-borne spirochetosis?") that posed the spirochete hypothesis as a question rather than a certainty.[16] In a narrative familiar to those who have followed the more recent story of SARS-CoV-2's "isolation,"[17] Burgdorfer and co-authors described their starting point as epidemiologic evidence that "suggested" infectious agent causality and "incriminated" a particular genus of tick. From that point forward,

the efforts focused on "isolating" the presumed causative agent rather than demonstrating that the presumed causative agent actually leads to disease.

In the 1982 paper,[16] Burgdorfer and colleagues described their sequence of investigatory steps as follows:

1. Initially, "attempts to isolate the causative agent either from ticks or from patients were unsuccessful."
2. The researchers then collected ticks from a "known endemic" Lyme region, dissected them and found spirochetes in certain gut tissues (although the spirochetes "moved sluggishly and rotated slowly" after being "moderately well" stained with dark-microscopy dyes).
3. The researchers used electron microscopy to further investigate the organisms' "structural features."
4. The scientists then "isolated" the spirochete "by inoculating 0.1 ml of a suspension prepared from midgut tissues of four infected ticks into 8.5 ml of modified Kelly's medium" (a culture medium containing, among other ingredients, "bovine albumin solution, gelatin solution and serum").[18]
5. When the researchers then allowed three hundred ticks to feed on eight rabbits to the point of engorgement, the rabbits developed tiny lesions (though only one rabbit showed lesions at the site of tick attachment). However, fourteen days of daily blood smears "were negative for spirochetes." Moreover, "limited attempts to isolate spirochetes from suspensions of biopsied skin lesions in Kelly's medium were negative." The authors stated, "Even though. . . at least two ticks harboring spirochetes had fed on each rabbit, we are not certain whether the described skin reaction. . . is causally related to the spirochetes or is due to other factors associated with the ticks' feeding process."

After some mucking about with antibody testing in the rabbits and in nine Lyme patients, what was the authors' tentative conclusion? "Our observations *suggest* that the. . . organism isolated from [the ticks in question] *may* be involved in the etiology of Lyme disease" [emphasis added].[16]

In 1983, Burgdorfer and NIAID colleagues published another short paper in *The New England Journal of Medicine* describing the "isolation" of spirochetes from the blood of two Lyme patients.[19] "Isolation" procedures again included inoculation with modified Kelly's medium, as well as "serial dilutions" and testing for reactivity "with tick-derived spirochetes from stock cultures."

In 2019, two of the three surviving authors of the *Science* article felt compelled to publish a detailed follow-up to their self-confessed "circumstantial" 1982 paper.[20] Making up for the brevity of the 1982 and 1983 reports, the follow-up article rambled through labored descriptions of the authors' training and qualifications, affectionate accounts of friendly mentorship from "Willy," nods to other "astute" researchers and discussion of lab techniques to "grow" spirochetes. The paper also added a few colorful details about the attempts to "isolate" spirochetes from ticks—noting, for example, that the ticks had been "dipped in ethanol and then briefly flamed to sterilize their exterior before dissection."[20]

The 2019 paper contained another interesting admission: The "eventual pure culture" obtained by the scientists turned out to be contaminated with another bacterium. As one of the authors reported: "I spent several days trying to clear what we presumed to be a contaminant with different antibiotics. I eventually found that nalidixic acid and 5-fluorouracil. . . could suppress if not eliminate the other organism while allowing growth of the spirochete. While we could not make a serious claim with a contaminated culture, it was the first recovery of the spirochete outside the tick and the only one with which to work at the time." The researchers then admitted that they continued to use cell suspensions that contained the contaminant. They stated: "Again, these were not results that could be included in a paper, but they gave us confidence that we were onto something."[20]

The laboratory efforts by Burgdorfer and colleagues in the 1980s likely would appear crude by twenty-first-century standards. In

The "eventual pure culture" obtained by the scientists turned out to be contaminated with another bacterium.

2008, for example, scientists bragged of efforts to genetically modify *B. burdorferi*—justifying these efforts as a strategy to assess "putative virulence factors" in the lab.[21] Using these "powerful genetic techniques," they remain interested in genetically manipulating spirochetes, lab animals such as mice "and even the tick" to study host-vector "interactions."[21]

SNEAKY SPIROCHETES

Spirochetes are considered unique[22] because of their endocellular whip-like flagella—a feature that allows them to "twist and move."[23] According to biologists, spirochetes are "characteristically found in a liquid environment (e.g., mud and water, blood and lymph),"[22] with free-living species populating aquatic habitats and symbiont species playing a "mutualistic role"[24] in hosts ranging from ruminants[25] to termites.[26] For example, a "physiologically and morphologically diverse population of spirochetes" inhabits the rumen of cows, significantly contributing "to the degradation of plant materials ingested by the ruminants."[25] In termites—the world's most prolific digesters of cellulose—spirochetes are essential in helping break down the cellulose; in fact, without spirochetes in the termite gut, the insects cannot survive.[27] In hosts such as mollusks, spirochetes serve no apparent purpose but nevertheless "coexist peacefully."[27]

Early on, researchers theorized that the *Borrelia* spirochetes func-

THE BIOWEAPON HYPOTHESIS

Although the first formal case reports of what has come to be known as Lyme disease emerged in the late 1970s, independent researchers have traced Lyme's Long Island origins further back to 1968, when Lyme emerged alongside two other novel conditions (Rocky Mountain spotted fever and babesiosis).[2] Describing subsequent investigations into the "triple threat" outbreaks as "fragmented," science and technology writer Kris Newby—herself a one-time Lyme and babesiosis sufferer—points out that officials never asked "why these strange diseases had appeared seemingly out of nowhere in the same place and at the same time." [2]

According to Newby—author of the 2020 book *Bitten: The Secret History of Lyme Disease and Biological Weapons*—the 1960s were a fertile period for tests of live biological and chemical warfare agents conducted by scientists from the Central Intelligence Agency (CIA), the U.S. Army and the Department of Defense.[55] In *Lab 257: The Disturbing Story of the Government's Secret Germ Laboratory*, investigator Michael Christopher Carroll broke the story of the government's Plum Island research in 2004.[56] (A 2019 *CounterPunch* story notes that Newby avoids discussion of Plum Island and Carroll's findings.)[57] The experimental testing of warfare agents took place in many locations, both domestically and internationally. After learning about these "grossly immoral" experiments from Newby's book, New Jersey Congressman Chris Smith, whose adult daughter has chronic Lyme, called for a comprehensive government investigation.[58]

"Willy" Burgdorfer was a key player in the U.S. biological weapons program, says Newby, artificially infecting fleas, ticks and mosquitoes with "deadly pathogens" and working with other tick experts at Fort Detrick to "mass-produce infected ticks so that they could be dropped from airplanes." [59] According to Newby's research, the U.S. military experimented with both "fast-acting fatal and slow-acting incapacitating disease agents." Ticks, moreover, "were the perfect stealth weapon, virtually untraceable and able to sicken a large population without damaging societal infrastructure." Later efforts also focused on tick-borne microbes "that could be mass-produced and deployed in aerosol form without the ticks." [59] Among the military activities outlined in *Bitten*, Army scientists reportedly dropped "infected ticks" on Cuban sugar cane workers and released "hundreds of thousands of radioactive, aggressive, Lone Star ticks on the Atlantic coastal bird flyway." [59]

Perhaps the biggest bombshell in *Bitten* is that Burgdorfer (now deceased) publicly copped to being a bioweapons expert in a 2013 videotaped interview, explicitly stating that the cause of the original Lyme-area outbreak was a bioweapon. Burgdorfer did not name the eponymous Lyme spirochete as the bioweapon, however, instead fingering a rickettsia—the "tiny virus-like bacterium" that scientists blame for Rocky Mountain spotted fever—which Burgdorfer nicknamed "The Swiss Agent." [59]

Though these and other tales of bioweapons-crazed mad scientists are ominous and deserve scrutiny, journalist and veteran medical cartel deconstructor Jon Rappoport offers an important and possibly reassuring counter-perspective. Rappoport's logical analysis—also highly relevant to current debates about SARS-CoV-2—calls attention to the fundamental fact that many of the pathogens supposedly being weaponized are figments of genomic sequencing rather than properly isolated pathogens. "Automatically jumping from attempt to success," Rappoport says, is "unwarranted." Stated another way, just because scientists claim to be capable of weaponizing viruses—or spirochetes—does not mean that they have been successful in doing so. Rappoport also notes that the "intentional deployment of a highly dangerous chemical" generally produces far more "predictable" effects, both in terms of intensity and duration, than biological agents.[60] His conclusion: "Self-styled experts" and others who "assume that an ATTEMPT to weaponize a virus equals success" may have been "watching too many sci-fi movies." [61]

tion as beneficial symbionts in ticks but become "parasites" in mammals.[28] In humans, the belief is that various spirochetes cause not just Lyme disease but also conditions such as syphilis[29] and periodontal disease.[30] Notably, the spirochete explanation for syphilis emerged concurrently with the one-microbe-one-disease theory popularized by figures like Robert Koch and Louis Pasteur in the late 1800s and the rise of dark-field microscopy.[31] Competing with other historical explanations for syphilis—including theories that it was a spin-off of leprosy (resulting from sex between prostitutes and lepers) or punishment for immoral behavior or the result of a "grand astrological conjunction"—scientists in 1905-1906 converged on (and then never again deviated from) the view that microscope-detectable spirochetes were the definitive syphilis-causing agent.[32] In the modern era, this has led to misdiagnosis of syphilis as Lyme (and probably vice-versa) because of spirochete antibody "cross-reactivity."[33]

Where the Lyme spirochete is concerned, descriptions are heavily reliant on creepy, science-fiction-like language that encourages a parasitic and even predatory perspective. One writer says, for example, that Lyme spirochetes resemble "biological smart cars—burrowing into tissues, nerves and joints with the aid of a tiny molecular motor with gear-like switches for forward and reverse navigation."[34] Using similar transportation imagery, a doctor specializing in Lyme treatment warns that the bacteria "feed on connective tissue of every kind and use the blood stream as their super-highway in order to get around."[6] Writing for the Global Lyme Alliance, a Lyme victim describes the spirochetes as both "savvy" and "difficult to catch," evocatively depicting them as "glowing gummy worms buzzing around [the] body" and "coiling around [the] arms and legs," with "headlamps guiding their way through [the] joints, cells, and organs, including [the] brain."[23]

From the sound of it, the "savvy" spirochete appears to belong to the same cast of "fairy tale" characters as the "wily" virus.[17] In fact, there are reasons to wonder whether the fairy tale's punch line might be "the emperor has no clothes." Take, for example, the manner in which a Lyme disease diagnosis is worked up. By and large, Lyme is *not* laboratory-diagnosed; instead, clinicians mostly rely on subjective assessment of the "clinical picture,"[35] which, as already noted, can resemble hundreds of other conditions. Operating on the assumption that *B. burgdorferi* "infection" is not up for debate as the cause of Lyme disease, laboratories have developed *B. burgdorferi* antibody tests, but they are notoriously problematic. Rated as "no better than a coin toss" by many,[36] the tests are a major source of frustration for patients whose treatment and insurance coverage hinge on a hard-and-fast diagnosis.[37]

Patients are not the only parties struggling to deal with Lyme's diagnostic challenges. The following phrasing suggests the flimsiness of the diagnostic edifice [emphases added]:

From the sound of it, the "savvy" spirochete appears to belong to the same cast of "fairy tale" characters as the "wily" virus.

MORGELLONS AND LYME: ENVIRONMENTAL FACTORS?

Morgellons disease is an "unexplained" skin condition characterized by "small fibers or other particles emerging from skin sores."[62] As the Morgellons Research Foundation states, a hallmark aspect of the condition is the experience of "disturbing crawling, stinging, and biting sensations."[63] Interestingly, individuals with Lyme sometimes describe "a spinning sensation under [the] skin" as well as the feeling of "twisting spirochetes coiling around [the] arms and legs" and "a buzzing like electricity."[23] Many individuals with Morgellons experience symptoms similar to Lyme such as fatigue, mental confusion and joint pain.[63] According to a 2013 report in *GreenMedInfo*, some physicians believe that Morgellons may in fact represent "an unusual morphing of Lyme disease."[64]

Studies in cattle have led to the suggestion that there are parallels between Morgellons and a condition called bovine digital dermatitis that is suspected to have "spirochetal involvement."[65] Spirochetal infection has likewise emerged as a possibility in connection with Morgellons disease in humans, due to the finding that spirochetes are found in Morgellons skin lesions.[64] Of course, causality cannot be inferred from the mere presence of spirochetes, which could be serving an unknown or unacknowledged purpose that might even be beneficial.

In the cases of both Lyme and Morgellons, there is little dispute that environmental factors play a significant role. Synthetic contaminants—whether from genetically modified organisms (GMOs) in food and agriculture[64] or glyphosate or nanoparticles in geoengineering aerosols[66]—are troubling contenders that deserve further attention.

> [A] major problem is the *inability of documenting the existence and location* of the bacteria. After the initial transfer of the bacteria from the. . . tick into the person, the spirochetes spread locally, but after an initial bacteremic phase, the organisms *can no longer be reliably found* in body fluids. The bacteria are *probably* present in subcutaneous sites and intracellular loci. Currently, the use of circulating antibodies directed against specific antigens of the Lyme borrelia are the standard means to diagnose the disease, but *specific antibodies are not an adequate means to assess the presence or absence of the organism*. What is needed is a *more Lyme-specific* antigen as a *more definitive adjunct* to the clinical diagnosis.[35]

Adding to the confusion, the author of the above passage observes that "there is often no separation between early and late or persistent/chronic Lyme disease," stating that one patient might progress directly to "persisting symptoms" while another might "have early disease, but then no further symptoms for a number of weeks or months." [35]

ONE THING LEADS TO ANOTHER

Inevitably, the conviction that Lyme disease is the result of infection with a bacterial parasite run amok has led to the parallel conviction that antibiotics are the solution. It seems to matter little that many patients experience "unspecific persisting symptoms such as fatigue, myalgia, arthralgia or cognitive dysfunction. . . months to years after adequate treatment."[38]

In a study published in May 2021, Tulane researchers examined the brain of a sixty-nine year-old female donor who had experienced the "classic" symptoms of Lyme fifteen years previously, followed by a steady decline into dementia and death.[39] To their astonishment, the researchers reported finding "intact spirochetes" in the brain, notwithstanding "aggressive antibiotic therapy. . . at different times throughout her illness."[40] Ignoring evidence linking widely used antibiotics to "serious disruption[s] in brain function. . . and other brain problems,"[41] or the increased risks of dementia from other drugs commonly taken by U.S. adults,[42] the Tulane researchers are sticking with the spirochetes, with plans to investigate *B. burgdorferi's* role in severe neurological disease.

The CDC admits that long-term antibiotic treatment is associated with "serious, sometimes deadly complications." [43] To continue making the case that "appropriate" antibiotic therapy is necessary to achieve favorable Lyme outcomes, the CDC and others have coined a new diagnostic category to cover the stubborn subgroup for whom aggressive antibiotic therapy provides no relief: "post-treatment Lyme disease syndrome," or PTLDS.[43] As per the CDC definition, PTLDS sufferers experience pain, fatigue and difficulty thinking that lasts for over six months post-treatment. The best that CDC can offer by way of explanation for PTLDS is to say that it either is a post-infection "autoimmune response," or the result of "a persistent but difficult-to-detect infection" or that PTLDS symptoms "are due to other causes unrelated to the patient's *Borrelia burgdorferi* infection." [43] Other researchers agree that it is difficult to differentiate between "active infection or post-infectious auto-immunity." [44]

The wily spirochetes that manage to survive bombardment with antibiotics also get their own name: "*Borrelia* persisters," defined as bacteria that "survive the killing action of antibiotics by changing its [*sic*] physiological state." [45] As a 2019 study describes them, these "elusive" persisters are multi-drug-tolerant and can "remain viable despite aggressive antibiotic challenge," sometimes by hiding out in biofilms. To combat these challenges, the authors recommend the development of drugs "with a high activity against multiple persister forms." They also note, however, that natural compounds such as stevia, oregano oil and cinnamon bark or clove bud oils have been effective in killing "all forms of *Borrelia*." [45]

ALTERNATIVES TO ANTIBIOTICS

Although mainstream medicine has no meaningful treatments to offer for Lyme other than antibiotics, Lyme sufferers and alternative healers have explored a number of options, ranging from nutritional interventions to herbal protocols.

On the nutrition front, the fat-soluble vitamins A and D are (unsurprisingly to those eating a Wise Traditions diet) of central importance. Studies indicate that vitamin A deficiency not only fosters susceptibility to Lyme but may exacerbate Lyme arthritis; evidence suggests that boosting vitamins A and D (preferably from food sources such as cod liver oil) can minimize or prevent Lyme symptoms.[46,47]

A 2016 study reported low serum carnitine concentrations in Lyme

patients.[48] Carnitine plays a key role in fat metabolism. The best source of carnitine is red meat, beef in particular. The authors of the 2016 paper recommend carnitine supplementation "to prevent late complications of the disease."

Orthomolecular physician Thomas E. Levy, MD, JD has described the successful use of intravenous vitamin C therapy for both acute and chronic Lyme disease.[49] In one case, a woman fell extremely ill seven to ten days after a tick bite, received several rounds of IV vitamin C and became "completely well, never having a clinical relapse or any chronic Lyme symptoms." In the case of a woman with a twelve-year history of chronic Lyme, one month of IV vitamin C therapy resolved the condition. Levy notes that the dramatic turnaround did not begin to manifest until day twenty-three, when a "switch was flipped" and the patient "looked like a new person."

Many other healing modalities have proven useful for at least some Lyme patients. These include hyperbaric oxygen therapy, light therapy, Rife machines, essential oils, traditional Chinese medicine and homeopathy.[50] Herbal approaches have also attracted many grateful testimonials. Master herbalist Stephen Harrod Buhner's website (buhnerhealinglyme.com) and book, *Healing Lyme*, outline a protocol involving astragalus as well as a paste made up of andrographis tincture and green clay.[51]

SHAPING PUBLIC PERCEPTIONS

Half a century into the Lyme story, it seems clear that many questions—whether about causality or treatment—remain unanswered. Even researchers wedded to conventional narratives state that "it remains paramount to. . . better understand the disease pathway and its pathophysiologic mechanisms" and to acknowledge the controversies that surround antibiotic treatment.[44]

Cutting-edge thinkers like Drs. Stephanie Seneff and Natasha Campbell-McBride have noted the strong correlation between the introduction of glyphosate into the food supply and the rise of Lyme disease. Given what we know about glyphosate in other contexts, the possibility that Lyme is at least in part the result of herbicide poisoning makes a lot of sense. And as *The Forbidden Doctor* website (forbiddendoctor.com) suggests, this may be the reason the spirochetes show up: "This is a situation where the presence of a bacterium is considered the cause of the disease, rather than being associated with it. This is like blaming the rats in the alley for the presence of a collection of garbage spilled all around. . . . [G]et rid of the glyphosate and the bacterium goes away." It also stands to reason that further poisoning with strong antibiotics is bound to make things worse.

Another possible explanation is toxins in

In the case of a woman with a twelve-year history of chronic Lyme, one month of IV vitamin C therapy resolved the condition.

When examining the Lyme narrative—or, for that matter, SARS-CoV-2—we must bear in mind the leading role played by NIAID and related government agencies in shaping public perceptions of disease and epidemics.

tick saliva. Like all blood-sucking insects, ticks produce vasodilators in their saliva to ensure that the blood stays liquid during their meal. These compounds can cause side effects like rapid heartbeat, heart palpitations, headaches and joint pain in those unable to clear these toxins.

Sadly, individuals with Lyme disease, like those with chronic fatigue syndrome and other conditions with slippery symptom profiles,[52] have often had difficulty getting medical practitioners to take their disease seriously. At this juncture, there should be no doubt that the condition known as Lyme—whatever it is—can cause considerable suffering. One writer notes that many of the chronically ill "are unable to work or go to school," adding: "Some go bankrupt. Families break up. There's a high rate of suicide among Lyme disease patients, reflected in a common saying among the afflicted: 'Lyme doesn't kill you; it only makes you wish you were dead.'"[2]

When examining the Lyme narrative—or, for that matter, SARS-CoV-2—we must bear in mind the leading role played by NIAID and related government agencies in shaping public perceptions of disease and epidemics. These agencies, with their vaccine patents and related agendas, can scarcely be considered disinterested or neutral parties. For example, federal agencies are currently allowing testing of experimental Lyme vaccines (including one developed by Pfizer),[53] despite a disastrous experience with a three-dose recombinant Lyme vaccine in the late 1990s. The vaccine generated numerous reports of musculoskeletal "side effects" (including arthritis!) that resulted in a class-action lawsuit.[54] The prosecuting attorneys, according to one account, asserted that the manufacturer, GlaxoSmithKline (GSK), "suppressed reports of adverse events from the licensing trial and provided inadequate warnings to genetically susceptible individuals."[54] Though GSK ultimately withdrew the vaccine from the market, those who experienced serious adverse events received no compensation.

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Homeopathy Journal

THE HISTORY OF HOMEOPATHY IN EPIDEMICS

By Cilla Whatcott, HD RHOM, CCH

The use of homeopathy in epidemics has stood the test of time.

Raymond Seidel, MD, HMD, said that he decided to become a homeopathic doctor during the Spanish flu epidemic of 1918 when he was working as a delivery boy for a homeopath in New Jersey. As he delivered remedies from homeopaths to their patients, he noticed that those taking homeopathy were all doing well while those taking aspirin were not. Seidel later stated, "I saw that the people who were taking aspirin were dying. . . and those that received homeopathic remedies were living."

The mortality rate of people treated with orthodox medicine and drugs for the Spanish flu was 28 percent. In comparison, those treated by homeopathic physicians had a mortality rate of only 1 percent.[1] Nor is the Spanish flu an isolated example—the use of homeopathy in epidemics has stood the test of time (see Table 1). In 2018, after conducting an extensive literature search, Dr. Jennifer Jacobs concluded that several different homeopathic methods can be employed during epidemics.[2]

SCARLET FEVER AND CHOLERA

Dr. Samuel Hahnemann (1755-1843) was a linguist, chemist, physician and founder of homeopathy. In 1799, Hahnemann made the accidental discovery that homeopathic *Belladonna* could be used as both a treatment and preventive for scarlet fever (also known as scarlatina).

Hahnemann wrote: "I reasoned thus, a remedy that is capable of quickly checking a disease in its onset, must be its best preventive; and the following occurrence strengthened me in the correctness of this conclusion: Some weeks previously three children of another family lay ill of a very bad scarlet fever; the eldest daughter alone, who, up to that period, had been taking Belladonna internally for an external affection on the joints of her fingers, to my great astonishment did not catch the fever, although during the prevalence of other epidemics she had always been the first to take them."[3]

Hahnemann continued: "This circumstance completely confirmed my idea. I now hesitated not to administer to the other five children of this numerous family this divine remedy, as a preservative, in very small doses, and, as the particular action of this plant does not last above three days, I repeated the dose every seventy-two hours, and they all remained perfectly well without the slightest symptoms throughout the whole course of the epidemic, and amid the most virulent scarlatina emanations from the sisters who lay ill with the disease."[3]

In 1831, the Russian community enlisted Hahnemann to assist in treating cases of so-called Asian cholera. Mortality was as high as 66 percent with the conventional care of the day. According to modern accounts of this period, "a murderous epidemic came over Europe from Russia (about 2,000,000 [*sic*] victims) with tremendous speed and mortality. The Baltic countries, Poland (1100 deaths in Warsaw alone) and Galicia were already affected. In Prussia and Austria frontiers were closed and quarantine facilities were constructed. Nonetheless, the Asian Cholera could not be halted."[4]

Applying sound homeopathic theory, Hahnemann collected common symptoms of the disease and prescribed appropriate homeopathic remedies in an effective method that is now known as "genus epidemicus." His treatment was highly successful and even came to be recommended by conventional physicians of the day.[4]

Genus epidemicus is derived from identifying the characteristic symptoms expressed during an epidemic, such as a wet or tickling cough, high fever, chills, sweating and so forth. These symptoms will point to a few remedies in most of the cases. Homeopaths can then quickly

deduce which remedy to give by identifying the outstanding symptoms in a particular case and choosing among these remedies.

U.S. HOMEOPATHY BOOMS

Homeopathy found its way to the U.S. in the early 1800s as physicians immigrated from Europe. The public embraced it as a safe and gentle form of medicine—in direct contrast to methods of the day such as bloodletting, purging and the widespread use of mercury, arsenic and lead.

Many physicians of the time were apprentice-trained and were able to become a doctor with the equivalent of a high school education. They earned very low salaries and had relatively low social status. The *New York Journal of Medicine* (in 1845) described the requirements for conventional medical education at that time as follows: "All the young man has to do is gain admittance in the office of some physician, where he can have access to a series of ordinary medical textbooks, and see a patient perhaps once a month, with perhaps a hasty post-mortem examination once a year; and in the course of three years

TABLE 1. Successful use of homeopathy during epidemics and pandemics

YEAR	LOCATION	DISEASE	TREATMENT BY HOMEOPATHY	TREATMENT BY ALLOPATHY	NO MEDICINE
1799	Königslütter, Germany	Scarlet fever	Mortality < 5%		
1830 ~ 1831	Russia	Cholera	Mortality 11% (reported by Imperial Council & Foreign Ministry of Russia)	Mortality 63% (reported by Imperial Council & Foreign Ministry of Russia)	Not recorded
1830 ~ 1832	Vienna, Prague, Hungary & Moravia	Cholera	Mortality 7% (reported by Dr. Kath, appointed by King of Bavaria)	Mortality 31% (reported by Dr. Kath, appointed by King of Bavaria)	Not recorded
1836	Vienna	Cholera	Mortality 33% (lead homeopath: Dr. Fleischmann)	Mortality 66%	
1847	Ireland	Typhus fever	Mortality 2% (lead homeopath: Dr. Joseph Kidd)	Mortality 13% (lead allopath: Dr. Abraham Tuckey)	Not recorded
1847	England	Typhus fever	Mortality 2%	Mortality 13%	Mortality 10%
1848	Edinburgh, Scotland	Cholera	Mortality 24% (reported by Edinburgh Dispensary)	Mortality 68% (reported by Edinburgh Dispensary)	Not recorded
Mid-1800s	Austria	Pneumonia	Mortality 5% (lead homeopath: Dr. Fleischmann)	Mortality 20% (lead allopath: Dr. Dietl)	Not recorded
1853 ~ 1855	South America	Yellow fever	Mortality 5.4% (lead homeopaths: Drs. F. Davis and W. Holconibe)	Not available	Not recorded
1854	London	Cholera	Mortality 16.4% (reported by Royal College of Physicians)	Mortality 59.2% (reported by Royal College of Physicians)	Not recorded
1878	New Orleans	Yellow fever	Mortality 5.6% (reported by Special Commission)	Mortality 17% (reported by Special Commission)	Not recorded
1918	Pittsburgh	Spanish influenza	Mortality 1.05% (reported by Dean, Pittsburgh Hospital)	Mortality 30% (reported by Dean, Pittsburgh Hospital	Not recorded

thus spent, one or two courses of lectures in the medical colleges, where the whole science of medicine, including anatomy, physiology, chemistry, materia medica, pathology, practice of medicine, medical jurisprudence, surgery, and midwivery are all crowded upon his mind in the short space of *sixteen* weeks. . . and his education, both primary and medical, is deemed complete" [italics in original].[5]

Homeopaths, in comparison, were highly educated and to this day are required to have ongoing postgraduate education within the field.

As a result of homeopathy's effectiveness and popularity, the first homeopathic hospital—the Cleveland Protestant Homeopathic Hospital—was established in Ohio by the mid-1850s. By 1900, over one hundred homeopathic hospitals had sprung up in the U.S., with twenty-two homeopathic medical schools and over one thousand homeopathic pharmacies.[6,7] Included among the schools were Boston University; the Universities of Michigan, Minnesota and Iowa; and Hahnemann Medical College.

HOMEOPATHIC SUCCESSES

Interest in homeopathy continued to grow as it became obvious that it could treat epidemic disease safely and gently. Dr. Adam Miller, a homeopathic physician in Quincy, Illinois treating patients with cholera, wrote of his successes during an 1851 cholera outbreak: "The cholera had broken out in a fearful form the week before I arrived there. The people and the doctors were alarmed. It was in June, 1851. The word was soon spread through the city that a new doctor had arrived and that he knew how to treat cholera. The first day after my arrival I had three patients, the second six, and in two weeks had all I could attend to. I cured several that the Catholic priest had anointed and prepared for death. He was so vexed about it that he denounced me from his pulpit and warned people against employing me as their physician, and said it must be some black art or work of the devil that allowed people to get well after he had prepared them for death."[8]

In Cincinnati, Ohio, homeopathy was booming, and homeopaths actually published names and addresses of patients cured of cholera compared to those who died. Of one thousand one hundred sixteen homeopathic patients, only 3 percent died, while between 48 and 60 percent of those under orthodox medical treatment died.[9,10]

In 1852, around the same time that homeopathy was flourishing in the U.S., a British medical doctor, Dr. Routh, was enlisted to complete a statistical account of mortality for all diseases in England, Austria and Germany. Routh reviewed over thirty-two thousand homeopathic cases and over one hundred thousand allopathic cases. Homeopathic treatment resulted in a 4.4 percent mortality rate while allopathic treatment reflected overall mortality of 10.5 percent.[11] This pattern emerged repeatedly, whether the illness was typhus, cholera, yellow fever or other epidemic illnesses (Table 2).

HOMEOPATHY AND POLIO

Amid the growing acceptance of homeopathy as a successful response to epidemic disease, disgruntled allopathic physicians decided to form an organization to stem the tide of popularity of this form of medicine, which was eclipsing their incomes. They called this group the American Medical Association (AMA).[12] The AMA's rabid efforts to extinguish homeopathy included disallowing membership by anyone practicing homeopathy and even forbidding consultation with homeopaths.[13] Despite the AMA's efforts, homeopathy continued to gain support due in large part to its unprecedented success in addressing polio, diphtheria and smallpox.

In 1950, a polio outbreak was met by the closing of public facilities, "social distancing" and the use of menacing chemicals such as DDT, all of which failed to eradicate the presumed virus. In 1953, Dr. Morton Biskind tried—largely unsuccessfully—to draw attention to what he viewed as a more logical explanation for polio epidemics, proposing that polio and other central nervous system diseases were "actually the physiological and symptomatic manifestations of the ongoing government- and industry-sponsored inundation of the world's populace with central nervous system poisons"—such as DDT.[14] Author Forrest Maready has written in his book *The Moth in the Iron Lung: A Biography of Polio*, "The irony these very applications [of DDT] were very often being used in a desperate attempt to stave off poliomyelitis in children is unfortunately lost on most."[15]

Several physicians desperately turned to homeopathy, using an

TABLE 2. Epidemic mortality rates: allopathy vs. homeopathy

YEAR	DISEASE	EPIDEMIC MORTALITY RATES	
		Allopathy	Homeopathy
1813	Typhus	30%	0.01%
1830	Cholera	40% - 80%	8% - 33%
1850	Yellow fever	15% - 85%	6% - 6.5%
1862	Diphtheria	83%	16%
1918	Spanish influenza	28%	1.05%

SOURCE: Thomas Bradford, *The Logic of Figures, or Comparative Results of Homoeopathic and Other Treatments*.[1]

approach that has come to be known as homeoprophylaxis (the use of homeopathy prior to exposure to the disease). Dr. Grimmer of Chicago prophylactically treated five thousand young children[16] with a homeopathic remedy called *Lathyrus sativus* generally indicated for "paralytic affections of lower extremities," "spastic paralysis," "infantile paralysis" and situations involving "much weakness and heaviness" and "slow recovery of nerve power."[17] None developed polio.[18] That same year, during an epidemic of poliomyelitis in Johannesburg, South Africa, Dr. A. Taylor-Smith protected eighty-two adults and children with homoeopathic *Lathyrus sativus* administered as a prophylactic measure. Dr. Taylor-Smith (an adherent to the viral theory) observed that while twelve children "were exposed to infection by direct contact," all remained polio-free.[16] In 1956, Dr. H.W. Eisfelder administered *Lathyrus sativus* to over six thousand children and observed no side effects or cases of polio.[19]

DIPHTHERIA AND SMALLPOX

In the late 1930s, diphtheria was the second leading cause of death in children in England and Wales.[20] Many countries considered it a major child health threat. A laboratory experiment in 1932, published by a Dr. P. Chavanon, found that one to two months after administering homeopathic *Diphtherinum* in the 4M and 8M potencies, diphtheria antitoxins were measured in the blood.[21] *Diphtherinum* is an example of a homeopathic "nosode," a type of harmless homeopathic remedy safely made from inactivated microorganisms or products of the disease itself.[22]

The Chavanon study used the Schick test, a method involving the intradermal injection of a tiny amount of diphtheria toxin into the forearm, developed in 1913 by Austrian pediatrician Bela Schick to measure diphtheria antibodies.[23] According to Dr. Chavanon's report, a total of forty-five children changed from Schick-test-positive (no antibodies against diphtheria) to Schick-test-negative (antibodies present).[21]

In 1941, Drs. Patterson and Boyd repeated the same test with thirty-three children. All had a Schick-negative result within nine weeks of receiving *Diphtherinum*, and some as early as three weeks afterward.[24] Another health professional named Dr. Roux repeated the Chavanon experiment in 1946 and again confirmed that the *Diphtherinum* nosode provided immunity lasting for up to five years.[25]

Another example of homeopathy's successful use was recorded by Charles Woodhull Eaton, MD of Iowa during his trials of homeoprophylaxis for smallpox. During the trials, he treated almost three thousand patients prophylactically with the smallpox nosode *Variolinum* 30.[26] Eaton recorded five hundred forty-seven "definite" exposures to smallpox in this group, but only fourteen participants went on to develop the disease—amounting to an efficacy (protection) rate of over 97 percent.

STILL FLOURISHING

Cuba provides a powerful modern example of a setting where homeoprophylaxis has flourished (Table 3).[27] The country's Finlay Institute (dedicated to vaccine research and development) has even utilized homeopathy within its department of natural remedies. Because the government distributes medicines to the population, homeoprophylaxis has been easy to implement as well as cost-efficient and highly effective. Between 2004 and the present, trials carried out in Cuba for cholera, dengue fever, swine flu, pneumonia, hepatitis A, leptospirosis,[28] and the current coronavirus[29-31] have produced stunning effects, showing disease prevention rates between 85 percent and 97 percent.

If we stop for a moment and consider the

TABLE 3. Cuba's experiences with homeopathy during epidemics

YEAR	DISEASE	HOMEOPATHIC INTERVENTION
2004	Hepatitis A	Finlay Institute (Dr. Campa)
2006	Dengue fever	Small intervention with infected patients
2007	Leptospirosis	2.2 million residents of Las Tunas, Holguin, Granma
2007	Hepatitis A	1 million residents of Holguin
2008	Leptospirosis	Repeated in 2007 intervention region
2009	Dengue fever	20,000 Havana residents – 74 to 100% efficacy
2010	Swine flu and pneumonia	9.8 million residents
2012-2014	Cholera	Granma, Gines, Mayabeke, San Miguel
2020	Coronavirus	Safely distributed to the elderly, pregnant women and children

SOURCE: Isaac Golden. Use of homoeoprophylaxis in three countries.[27]

benefits of homeopathy, its track record in epidemics, the ease of distribution (no needles or cold chain required), plus the absolute safety of this natural method, it seems a rational and obvious choice during epidemics. Considering our ever-expanding awareness of our relationship with bacteria and viruses and the role they play in health and evolution, we would be well served to interface with microbes in the gentle manner that homeopathy allows.

*Cilla Whatcott is a board-certified classical homeopath with a four-year professional diploma from Northwestern Academy of Homeopathy and a PhD in homeopathy. She is executive director of Real Immunity (*realimmunity.org*), which trains medically licensed providers to administer safe and effective homeoprophylaxis. Cilla has lectured in Europe, Asia and North America, and organized three international homeoprophylaxis conferences (2015–2017) with leading researchers. She is the author of* There Is a Choice: Homeoprophylaxis*, co-author of* The Solution: Homeoprophylaxis – The Vaccine Alternative *and producer/director of the* Real Immunity *film series aired on Gaia.com, which featured luminaries such as Andrew Wakefield, Del Bigtree, Paul Thomas and Sally Fallon Morell. In 2016, Cilla proudly received an award from the Weston A. Price Foundation for her pioneering homeoprophylaxis work. As a cancer survivor using all-natural methods, and mother to one biological child and children adopted from Russia, Taiwan and China, her deepest desire is to see families everywhere heal and thrive.*

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Soy Alert!

SOY'S ESTROGENIC EFFECTS

By Sally Fallon Morell

An alert member recently sent us two studies on soy—one from this year and one from 2004, which we had missed. Both reveal the estrogenic dangers of this toxic bean.

The 2021 paper comes from Japan, where a team of researchers administered soy isoflavones—the estrogenic component of soy—to baby catfish and succeeded in making them 100 percent female. Researchers have been able to turn male catfish into females by administering female hormones, but this method is banned for fish for human consumption. Soy isoflavones have the same effect and apparently can be administered legally!

The fish farming industry prefers female catfish because they grow faster—to a weight of six hundred grams (about one and one-third pounds) in six to ten months after hatching. Males grow much more slowly.

Lead researcher Toshinao Ineno thinks using soy female hormones on fish destined for human consumption is a great idea. "By making them all female, production efficiency will rise. This can be applied to other farm-raised fish whose females are more valuable." The team intends to work on making sturgeons—the fish that produce caviar—female using soybean isoflavone as well.[1]

The 2004 study, titled "Increased aggressive behavior and decreased affiliative behavior in adult male monkeys after long-term consumption of diets rich in soy protein and isoflavones," comes from the journal *Hormones and Behavior*, which found that monkeys fed a diet high in soy isoflavones became aggressive loners.[2] The official explanation: "Estrogen produced by aromatization of gonadal androgen has an important facilitative role in male-typical aggressive behavior that is mediated through its interaction with estrogen receptors (ER) in the brain. Isoflavones found in soybeans and soy-based dietary supplements bind ER and have dose- and tissue-dependent effects on estrogen-mediated responses."

The estrogenic isoflavones did not make the monkeys nicer, as might be expected. Instead, diets with high levels of isoflavones made the monkeys both more aggressive and more submissive. In addition, the proportion of time spent by monkeys on high isoflavone diets in physical contact with other monkeys was reduced by 68 percent, time spent in proximity to other monkeys was reduced 50 percent and time spent alone was increased 30 percent (P's < 0.02). Said the researchers, "The results indicate that long-term consumption of a diet rich in soy isoflavones can have marked influences on patterns of aggressive and social behavior."

The implications of this study should give everyone pause. Today's young people typically ingest large amounts of isoflavones from industrial foods—from soybean oil (the most widely used oil in processed food), soy protein added to many foods, including hamburger mix in schools, and a host of soy additives. If they were given soy formula, they will have received this estrogenic imprint from early life; and if they have embraced a plant-based diet, they will be ingesting soy in Impossible Burgers and other fake meat products. Carnivores get isoflavones from meat, eggs, fish and dairy foods from animals fed soy.

It is not far-fetched to assume that these estrogen-laced foods have an effect on behavior, making men in particular more aggressive and more anti-social, and also increasing the incidence of gender confusion.

The estrogenic isoflavones did not make the monkeys nicer, as might be expected. Instead, diets with high levels of isoflavones made the monkeys both more aggressive and more submissive.

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Technology as Servant

HARNESSING ENERGY AND POWER: PROMETHEUS' GIFT OR PANDORA'S CURSE?

By James Kirkpatrick

Although disquieting to think about, one should not underestimate the role of slave labor during this period, as enforced human labor along with wood were the dominant forms of energy available.

As told in Greek mythology, the champion of early humanity was the titan Prometheus, who molded humans in his own image from clay, but also committed the cardinal sin of stealing the magic of fire from the gods and delivering it to humanity. For the crime of delivering the power of fire to us lowly mortals, Zeus (king of the gods) chained Prometheus to Mount Elbrus in the Caucasus Mountains, where daily an eagle would peck out and eat his liver, only to have his wounds and organs heal nightly on account of his immortality—this cycle of atonement repeats itself for all eternity.

The tale of Prometheus provides an allegory to explain how humanity mastered the power of the gods—the ability to harness heat and light through controlled combustion. The story indicates that the power to control combustion is a great gift but has a negative side effect in the form of combustion by-products, often referred to as air pollution.

MANY BENEFITS

Full control of fire for early humans provided many benefits. Mastery of fire allowed proto-humans to greatly expand their diet by making meat and plant foods easier to digest. Some researchers believe that the use of fire as a deterrent for night time predators led to the domestication of wolves into dogs. Fire also allowed humans to greatly expand their nomadic footprint by providing heat in northern and mountain climates, allowing Neolithic tribesmen to fan out across Europe, Russia and northern China. Fire enabled these tribes to live at the foot of the great mountain ranges of the world, greatly increasing human access to water.

Prometheus' gift also allowed humans to control and terraform the earth, using fire as the principal means of land management in order to clear brush to make way for open fertile fields suitable for human-scale farming and agriculture development. The mastery of fire also allowed humans to greatly improve hunting success. It was a common practice during prehistoric times for humans to use a controlled burn fire to drive herds of wildlife into valleys and depressions, where large amounts of food could be culled selectively.

From these primitive beginnings, the story of how humans have harnassed unrealized "earth" energy from the environment and converted that energy into useful work has been one of the defining narratives of the human journey for the past twenty thousand years, with some key breakthroughs occurring along the way.

Prior to the industrial revolution, our ability to harness power (defined as energy or work

FIGURE 1: Ancient and medieval power sources, expressed in horsepower

Antiquity and Medieval Era Power Sources		
Source	HP	Notes
Human	0.1	Typical Work Load over 12 Hours
Wood	0.5	Per Pound of Wood / 15% Moisture Content
Pig Waste	0.8	Per Pound / Dried
Horse	1.0	Typical Work Load over 12 Hours
Small Waterwheel	15.0	Average
Typical Windmill	25.0	Average
Large Waterwheel	100.0	Average
Mid-Sized Sailing Ship	200.0	Small Galley Type Ship, All Wind, No Oars

over time) was extremely decentralized and typically involved one of the following processes:

1. Combustion of wood into heat and light;
2. Combustion of animal waste into heat and light;
3. Human and animal labor;
4. Water wheels, the conversion of potential energy (gravity-driven water flows) into kinetic energy;
5. Windmills and sails, the harnessing of potential wind energy into kinetic thrust.

Throughout the pre-industrial period, the harnessing of energy into useful work was restricted to the following domains: keeping humans alive; cooking; agricultural cultivation; light agricultural support work such as pumping water from underground; chopping and sawing wood; grinding grain; hammering wrought steel for weapons production; spinning yarn; primitive glass production; and converting wood pulp into paper.

Figure 1 represents the power sources available to human civilization from roughly 5,000 BCE to 1750, or from early antiquity to the late Enlightenment. The temptation is to imagine that these early power-generating sources were few and far between, the property and domain of the aristocratic class only. The reality is more populist and widespread. In 1086, William the Conqueror commissioned a comprehensive survey of the tax-generating and economic capabilities of every shire and cow pen in England. The work is known as *The Doomsday Book*. The survey recorded six thousand windmills and fifty-six hundred waterwheels in operation in England in 1086. For an estimated population of one and one-half million, this calculates to one power-generating source for every one hundred twenty-five individuals in the country at the time.

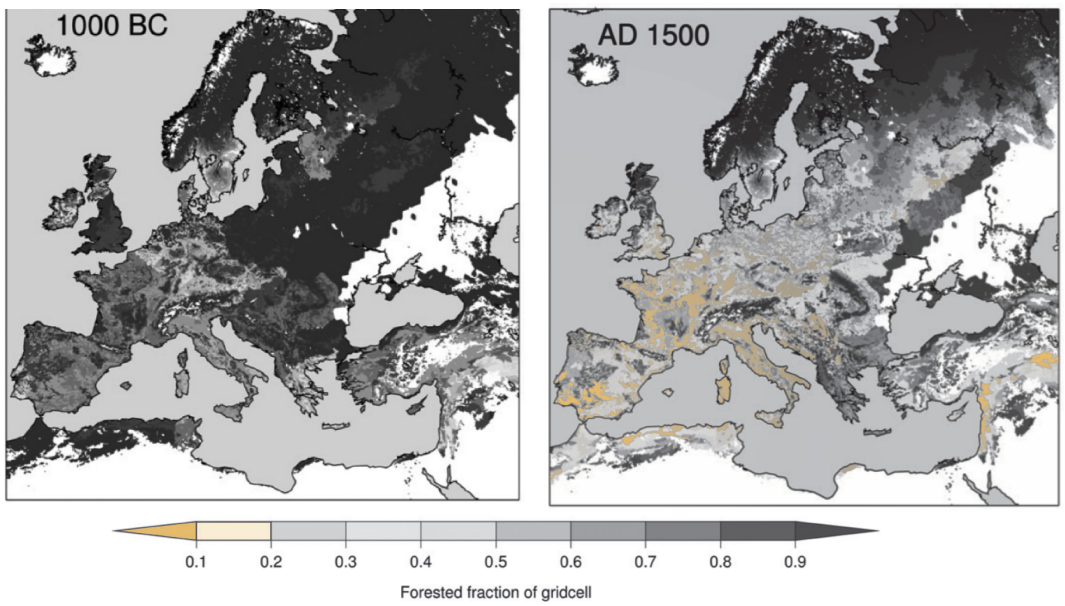
WOOD DEPLETION AND SLAVE LABOR

Although disquieting to think about, one should not underestimate the role of slave labor during this period, as enforced human labor along with wood were the dominant forms of incremental energy available. For the majority of this period, one of the primary reasons for two groups to wage war against each other was to accumulate human property. At the time of Augustus (0 CE) and the height of Roman expansion, the population of the empire has been estimated at sixty million inhabitants, of which roughly 25 percent were slaves, 40 percent non-citizens and only 35 percent citizens, with citizens concentrated heavily in Italy.

These fifteen million slaves provided roughly one and one-half million horsepower of human labor, the modern equivalent of what six thousand John Deere tractors and heavy machinery would provide when used in agriculture and building projects. It should be assumed that every great wonder of the ancient world was primarily constructed using slave labor.

Another important factor to consider: through the Roman Empire into the pre-industrial age, Europe had developed a substantial wood problem. Huge sections of continental Europe had been utterly deforested as the demand for heat and construction materials surged with increasing birthrates and life expectancy. The lack of wood has been cited as one of the primary factors in the decline and fall of the Roman Empire and the impetus to explore new lands.

The harsh reality that Europe was running out of wood and other



critical resources is an underlying driving factor behind both the Industrial Revolution and the expansionary colonialism that would come to dominate the next four hundred years of world history.

THE INDUSTRIAL REVOLUTION

In 1533, King Henry VIII of England broke from the Catholic church and seized the church-owned lands in England. These church lands were heavily concentrated in the north and happened to sit above the rich coal seams of Lancashire, south Yorkshire and Northumberland. The infusion of the commercially minded opportunists from London onto former church property would lead to an almost full replacement of wood with coal for heating in England over the next two hundred years and set the table for the coming Industrial Revolution.

The Industrial Revolution, still in its infancy in 1700, would transform every aspect of human society over the next two hundred years, with the most profound and dynamic change occurring in the energy sector. The relationship between humans, the environment, the resource abundance of the earth and the use of fossil fuels for both heat and power would all go through fundamental transformations.

In the early years, the use of coal was restricted to direct burning to produce thermal heat. This would change with the timely inventions of two British men. By 1712, the workers in the coal and tin mines of England encountered an engineering problem. As you dig deeper and deeper into the earth in search of additional raw materials, water ingresses into the mine, making conditions impassable. The solution was an invention called an engine. In simple terms, an engine is a machine that converts thermal heat into useful work; when useful work is sustained over time, you get power.

The engine burned coal to heat water into steam, and then used that steam to draw suction or provide thrust through a piston encased in a pressure-containing cylinder. The inventor, an Englishman named Thomas Newcomen, was an ironmonger by trade. The first Newcomen steam engine, also called a "common engine," produced a useful work output of 20 horsepower (the equivalent of 200 manpower) and was installed in one of the very same coal mines accessed by King Henry VIII's land grab. Newcomen steam engines remained in industrial operation until the 1920s or for roughly two hundred years.

By 1775, there were about six hundred Newcomen steam engines in operation in the coal and metal mines of Great Britain and continental Europe. In 1776, a Scottish instrument maker and student of Newcomen's steam engine, named James Watt, of the unit of measure fame, made a major refinement to Newcomen's engine. By adding a dedicated external heat exchanger, called a condenser, this improved the efficiency and also allowed the machine to draw vacuum pressure.

Newcomen and Watt have received the majority of the accolades for their inventions and for helping to ignite the Industrial Revolution, but in truth there were hundreds of individuals involved in finding new uses for coal—which was mined in greater and greater abundance.

ROCK OIL OR WHALE BLUBBER?

Two other important breakthroughs occured in the next century, which would set the world on its course to the present-day energy reality. The first involved coal's liquid brother, rock oil or petroleum, soon to be known as crude oil. By the 1850s, Captain Ahab and his ilk had hunted the North Atlantic sperm whale population to the point of extinction. Sperm

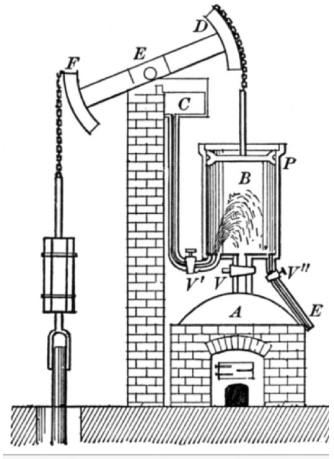
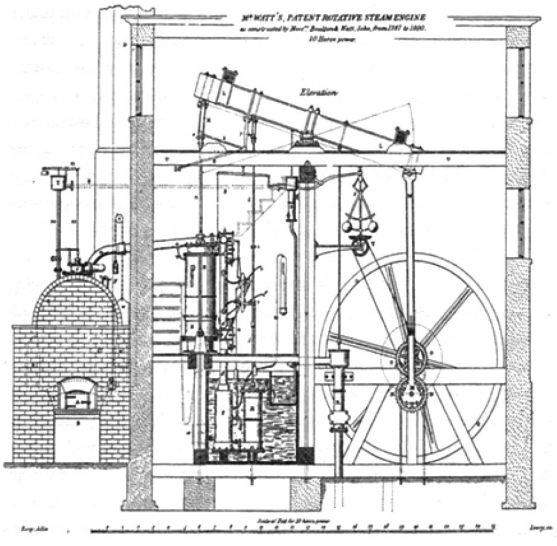


Diagram of the Newcomen steam engine

Newcomen Steam Engine



Watt Steam Engine

whale blubber was harvested and rendered to produce a bright illuminating oil used in lamps across the world. With fewer whales to hunt and render, the price of illuminating oil had skyrocketed to four dollars per gallon in real money terms (dollars of the day) or what today would be the equivalent of one hundred thirty dollars per gallon with inflation.

Two men set out to exploit this emerging market opportunity. The first was George Bissell, an industrialist who realized that a distilled product could be derived from what was then known as rock oil into a suitable illuminating fuel. The product was called kerosene. Rock oil had been known in various corners around the world since antiquity, since it would frequently bubble up from seeps in the ground after earthquakes. The substance already had a variety of uses including in medicines, tinctures, waterproofing—and for starting fires, of course.

The second man was Colonel Edwin Drake, who was recruited by Bissell. Together in 1859, are credited with drilling the first commercial oil well in the world, in Titusville, Pennsylvania. The well was drilled using a Newcomen-Watt-style steam engine and produced fifteen barrels a day. By 1870, the area surrounding the first Drake well was producing fifteen thousand barrels of oil per day, from which three thousand barrels per day of high-quality kerosene were produced at the world's first oil refinery, located in Pittsburgh, Pennsylvania.

In context, that production of illuminating oil would require the hunting and harvesting of three thousand sperm whales per day. At the time, estimates put North Atlantic whale hunting at fifty to sixty thousand kills per year. In absolute energy terms, this level of production is even more substantial. An oil field producing fifteen thousand barrels per day contains as much thermal energy as ten million pounds of wood or two thousand average-size trees, every single day.

Roughly fifty years later, in 1901, a single oil well was struck above the geologic salt domes of Spindletop, Texas, which would produce one hundred thousand barrels of oil per day. The era of the fossil fuel had now fully arrived. Fossil fuels saved the whale and saved the trees—for by 1900, the eastern forests of America were largely denuded, just as they had been in Europe several centuries earlier.

ENERGY FROM THE SUN

All energy on the earth, whether chemical, potential or kinetic, ultimately derives its origins from our star, Sol the sun. Fossil fuels are no exception. Our sun is a massive fusion reactor operating at temperatures of 10,000 degrees F on the surface and several million degrees in the center. Every second, the fusion reactor that is our sun converts six hundred million tonnes of hydrogen into helium; in the process, roughly four million tonnes of matter are converted into energy, providing the heat, light and radiation that serve as the basis for all life on the planet.

Here on the earth, plants use the process of photosynthesis to absorb energy from the sun and carbon dioxide from the air to produce oxygen and absorb carbon. Fossil fuels are formed through a specific decomposition process that requires just the right conditions and a healthy pinch of geologic luck. When living matter dies and biodegrades in the absence of oxygen, this is the critical enabler that leads to the formation of fossil fuels.

If oxygen is present during the decomposition process, the original living matter will be converted back into carbon dioxide and directly released to the atmosphere. Trees in swamps and bogs ultimately decompose into coal due to the presence of carbon-rich lignin. Most of the crude oil present under our feet originally started off as algae and other simple organisms. In ancient times, when the carbon dioxide concentration was about two and one-half times higher than today, large inland lakes would experience enormous algae blooms that would deoxygenate the water, die, sink to the bottom of the lake and decompose under layer-upon-layer of oxygen-deficient silt.

Through continental drift, these carbon-rich sheets are driven under ground where the organic material cooks into crude oil. If the oil or coal cooks too long, the organic material decomposes further into the third member of the fossil fuel family, natural gas (often referred to as cooking gas), composed mostly of the simplest hydrocarbon, methane. In other words, all fossil fuels represent a long-term concentrated storage of the sun's energy.

If left in the ground undisturbed, fossil fuels represent an enormous global carbon sequestration program. As we all well know, we have not left these remnants undisturbed in the ground. In some ways, the Industrial Revolution into modern times represents the unlocking of a vast and virtually unlimited source of energy—five hundred million years of stored sun energy.

The release of this stored carbon has brought many benefits—from the end of worldwide slavery to the conveniences that make our modern lives so comfortable. The Pandora's curse piece of the global energy equation is the unforeseen side effect of releasing five hundred million years' worth of stored carbon in the span of just several hundred years, thus increasing levels of carbon dioxide in the atmosphere.

The final major technological breakthrough, connecting the Industrial Revolution to the modern energy complex of today, was the electrification revolution, which emerged in the late 1800s, a subject I'll discuss in my next column.

James Kirkpatrick is a mechanical engineer and energy analyst serving as president of JKF Associates.

Wise Traditions Podcast Interviews

INTERVIEW WITH TOBY ROGERS
HEALTH FREEDOM: THE COSTS OF AUTISM

Hilda Labrada Gore is the producer and host of our Wise Traditions podcast and a Washington, DC, co-chapter leader. An enthusiastic communicator, Hilda is passionate about wellness on every level, which is why she is known as "holistic Hilda." She is a speaker, podcast consultant and the co-author of *Podcasting Made Simple*. Hilda lives in Washington, DC, with her husband, children, dog and cat. Subscribe to her blog through her website (holistichilda.com) and follow her on Instagram: @holistichilda.

HILDA LABRADA GORE: The incidence of autism in the U.S. has increased dramatically over the last few decades. The first autism prevalence study, in 1970, showed an autism rate of less than one per ten thousand children. Today in the U.S., the autism rate is conservatively estimated at one in thirty-six children. Sometimes we hear the stats, but the implications don't quite register.

Today we discuss what these numbers look like in real life with Dr. Toby Rogers. Toby has a profound understanding of the public health problem of autism—from how it impacts parents to the economy and the world at large. He has a PhD in political economy from the University of Sydney in Australia. His doctoral thesis, *The Political Economy of Autism*, explored the regulatory history of five classes of toxicants that increase autism risk and showed that the public health problem of autism actually starts with the political and economic problem of regulatory capture. He tells the story of how he took a dive into what increases the risk of autism, discusses the indirect and direct costs of caring for those with autism, and talks about the grassroots communities that are coming together to stop the autism epidemic.

Toby, let's start with the fact that you were studying for a PhD in Sydney and then you completely changed fields. Is that right?

TOBY ROGERS: Yes, that's correct. I felt like I had won the lottery when I got a scholarship to study political economy in Sydney. There's a legendary political economy program there, and I had worked for six years to get a scholarship to go there. In the early days of my PhD program, I was feeling no pain. I was working hard—but Australia is paradise. I was going to the beach every weekend, and I was loving Australia. About a year into my program, I was dating an Australian woman whose son was diagnosed as being on the autism spectrum. I was curious. I take seriously this notion that we're on a quest for knowledge. I was in this very old-school PhD program that's very strict about doing it right—doing it by the book, being orthodox—and with a heavy emphasis on original source documents rather than secondary sources. When I wanted to understand autism, I went to the website of the U.S. Centers for Disease Control and Prevention (CDC). The CDC had a narrative about autism. But, being in a PhD program, I knew that my responsibility was to read the original sources. So, I looked up all the CDC's footnotes, and I started reading their sources.

HG: Tell me what their narrative and sources were pointing to. What were they saying was causing autism?

TR: The CDC's website on the causes of autism is a scientific embarrassment. They pursue a couple of different narratives. They're fond of pointing the finger at medications that are no longer on the market. So, literally, on the cuases of autism the CDC website will say, "Don't take thalidomide." Yes, thalidomide is toxic and was a public health disaster in the 1950s. It was never approved for the U.S. market. It hasn't been in the U.S. market for at least forty years. It is preposterous to point the finger at a medication that's not on the market anymore. They do the same thing with valproic acid, which is recommended for treating epilepsy but is contraindicated in someone who is pregnant. They're pointing the finger at the wrong things, and it's self-evident.

HG: These drugs can't be culpable as one wasn't even approved on the U.S. market and the other one has been contraindicated for some time for pregnant women. What explanation did they have for autism today?

TR: The embarrassment continues, because the CDC then pivots to saying, "Well, it must be genetic." And they sort of vaguely wave at a handful of genetic studies. But if you read the studies, they don't support the narrative that this 27,000 percent increase in autism since 1970 is genetic. And it gets even worse.

HG: I imagine it does. And you might not have to read the studies to understand that it's not genetic. If a person has common sense, they can say, "Wait. There's no autism in my family. Honey, is there autism in yours?" "No." So that doesn't hold water either.

TR: Correct. There's no such thing as a genetic epidemic, the human genome just doesn't change that quickly in the course of a generation. I saw a study once that said the most the human genome will change is 1 percent over the course of one hundred years. I ran that by a few geneticists, and they said, "No. That's even an overstatement." We're not going to see a 27,000 percent increase in this disability if its root is in genetics. It's preposterous to make that argument, and yet that's the argument that the CDC has been making for the last thirty years. They're still making it on their website and it's absurd.

HG: Here you were, a PhD student not originally interested in autism, but because your girlfriend's son had autism, you started looking into it and find this nonsense. What did you do next?

TR: First, you feel like you're losing your mind because the CDC was this respected public health agency. Surely public health agencies aren't lying to us—that would seem outlandish. So, I spent a second day researching this topic and then a third and fourth day, and the CDC's narrative kept failing to check out. I started reading some of the skeptical literature. The arguments they were making seemed like a much better fit for the data than what the CDC was saying. So, before I knew it, I was spending six weeks, seven days a week, twelve hours a day doing nothing but reading about autism. I realized that I had stopped working on my original topic. I had to have a conversation with my supervisor about what was going on. I said to him, "Look, I was happy with the topic I was working on, but I have stumbled into what is quite possibly the biggest political economy story in the world right now. I've seen this pattern in the data, and I have a moral responsibility to change my topic and work on autism."

Once I'd seen the pattern in the data, I couldn't go back. I couldn't in good conscience not say, "I have seen what's going on with environmental factors that increase autism risk. I know that the CDC is lying. I know that politicians have no idea about the calamity that's coming down the track." I could not in good conscience abandon that work once I'd seen the pattern. It led to difficult conversations. Everybody knows that this topic is politically radioactive because of the question about vaccines. Everybody is skittish about it. To their credit, my department and my supervisor stood by me and allowed me to make the change to work on the political economy of autism.

HG: What if the CDC wasn't lying but was just mistaken?

TR: It was interesting. At the university, there's this PhD space where

UNUSUAL TOPICS ON THE WISE TRADITIONS PODCAST

We love to think unconventionally, to ask questions, and to explore new (and ancestral) horizons. Below are a few of our recent podcasts that touch on some not-quite-typical health-related topics:

Podcast 316 - the benefits of drinking seawater with Robert Slovak

Podcast 313 - how the displacing conveniences of modern life are reducing opportunities to move with Katy Bowman

Podcast 311 - why most salt is de-mineralized (similar to the process of pasteurizing dairy) with Darryl Bosshardt

Podcast 315 - the importance of intuition, instinct and ancestral wisdom for those in the most difficult health circumstances wtih Dr. Cynthia Li

Go to our podcast page on our website to download or listen. (You can also listen on your smartphone on just about every podcast app.)

And please let us know what other topics you might like us to cover! Email us at podcast@westonaprice.org.

Also, did you know you can purchase 3 month's worth of our podcasts on a flashdrive to listen without Internet? Call us for more information (703) 820-3333

We're seeing everything from coal-fired power plants, plastics, pesticides and EMFs having an effect on autism. But, the nine-hundred-pound gorilla in this debate is vaccines.

there are about seventy-five PhD students, all in a series of three different offices with a series of desks and computers. I would spend all day reading, and then I'd go into the break room for dinner with this sort of look in my eyes of shell shock about what I was going through. Throughout the day, when I would find an additional piece of data, I would break down crying because the situation is so much worse than people realize in the mainstream media.

I told one of my colleagues, a fellow PhD student, about what I was working on. I didn't tell many people, only a couple students, and she said, "My housemate has a vaccine-injured son. Would you like to interview him?" I said, "Yes, I would." So, I had coffee with them. This is another original source. At that point, I had heard all the stories about crazy "anti-vaxxer" conspiracy theorists—all the labels, stereotypes and name calling. That was the picture I had when I went to interview my colleague's housemate. I met with him, and he was like me. We're about the same age. He had a kid, and a well-baby visit had gone spectacularly wrong. Speaking with him about his journey led me to know that I was on the right track. This was an actual real person in the real world whose experience was backing up what I was discovering in the data.

HG: As you were digging, you found that not only was the CDC wrong in saying that it was genetic or due to these drugs that were no longer in use, but other factors were pointing to making this link between vaccinations and autism.

TR: Yes. I did a deep dive. I did literature searches on any possible toxic chemical link to autism. I did a deep dive into mercury from coal-fired power plants. I did a deep dive into plastics and fire retardants, and there's some effect there. We're seeing everything from coal-fired power plants, plastics, pesticides and EMFs having an effect on autism. But, the nine-hundred-pound gorilla in this debate is vaccines. I wanted to defend the CDC. I wanted the CDC to be right. I was perfectly happy with my life before discovering this topic. I did not want to discover that vaccines can cause autism, and yet it runs throughout the data. It's impossible to miss if you do an honest evaluation of the studies on this topic.

HG: And yet, in the news we hear vaccines don't cause autism. Who's covering that stuff up?

TR: The pharmaceutical industry spends billions of dollars to shape the narrative about their products. They do qualitative research. They know how we make decisions. They write scripts so that, for every type of refusal of any product in the doctor's office, doctors have a script for how you can get a patient to agree to these things. People watch TV, and they're influenced by CNN, MSNBC and Fox. Cable channels, news sources, the evening news—they are all shaped by advertising from the pharmaceutical industry.

The U.S. is one of only two countries in the world that allows direct-to-consumer marketing of pharmaceutical products (the other being New Zealand). It's a tremendous problem. Not only do patients get the wrong information or a too-rosy account of a particular drug, but it actually ends up buying off the evening news. That's actually the bigger problem of direct-to-consumer advertising—no evening news channel will ask tough questions about vaccines or any other pharmaceutical product because they know that the pharmaceutical industry will retaliate by cutting advertising spending. Any news anchor who wants to pursue this story will get a phone call from the boss saying, "How dare you bite the hand that feeds us!" And so, there's no investigative journalism happening in the mainstream media right now. It's a tragedy.

HG: I think I understand now why you said this is a bigger political and economic story than you could have imagined. There are a lot of interwoven financial and political interests keeping the cap on this story.

TR: We're on the verge of the collapse of an over two-hundred-year-old democracy because the pharmaceutical industry has poisoned our entire political system. It has poisoned our elected officials and our elections. It has poisoned all of our regulatory agencies—the CDC, the Food and Drug Administration (FDA), the National

Institutes of Health (NIH), the Environmental Protection Agency (EPA)—all of these regulatory agencies are supposed to be protecting us, but they're all captured by industry. They all end up working for the very industries that they're supposed to be regulating and protecting us from.

It's a political problem because we're on the verge of political collapse, and it's an economic problem as the costs of autism are catastrophic. In 2015, there was a very good study on the cost of autism, and it said that the cost at that time was two hundred sixty-eight *billion* dollars a year in the U.S.—and that was five years ago. They projected that by 2025, we'd be looking at one *trillion* dollars a year in autism costs just in the U.S. I was curious about a point of reference, and so I looked up the U.S. Defense Department budget, which is about $750 billion annually. So, one trillion dollars a year in autism costs is actually greater than the U.S. Defense Department budget, which is the largest single line item in the U.S. budget. There's no plan for how to pay for this. There's no strategy for how to pay for the educational, housing or health care costs associated with autism—and yet we're looking at a trillion dollars a year in cost by 2025. There's also a 2020 study out of North Carolina State that looked at the ten-year cost of autism in the U.S. over the period of 2020 to 2029. They're projecting seven trillion dollars in autism costs in the U.S. over that period. That's a disaster unlike anything we've ever seen before.

HG: Where is that money going? Can you break that down a little bit for us?

TR: It's both direct costs and indirect costs. The costs of education go up when you need an instructional aide or you need additional support in the classroom. Furthermore, people on the spectrum often have a range of what are call comorbidities. They have gut issues and sleep issues, chronic pain and seizures. Health care costs go up. Often you have one parent, usually the mom, who leaves the workforce to care for the child. That person ordinarily would have been making money in the workforce and paying taxes on that. That salary drops out, both for the family and for wider society. What researchers do is they look at a basket of costs, both direct and indirect, and come up with the figure. The numbers suggest there will be additional costs of about $3.3 million on average if someone is on the spectrum, over and above the cost of parenting in general.

HG: We're not even talking about emotional or physical costs—the exhaustion of the parents and the families, or the disappointment that the child who was perfectly well and meeting all the markers at their two-year appointment is suddenly behind in verbal skills and other things. It's devastating.

TR: Yes. I meet lots of parents and kids on the spectrum, and they're all dealing with various levels of emotional challenges, trauma and stress. I spent 2019 working to defeat mandatory vaccine bills in different states like Colorado, Oregon, California, New Jersey and Virginia. One of the things that is striking about these campaigns to defeat mandatory vaccine bills is the amount of moral injury inflicted on these parents and families by elected officials who refuse to listen. There's also moral injury by the press which calls people names. I've interviewed hundreds of parents and kids on the spectrum, and I have never met a more courageous group of people in my life—just absolutely extraordinary human beings who will do anything for their kids and who are managing to keep it together in spite of enormous odds and enormous daily challenges. Conversely, I've never seen such cowardice on the part of the media and the politicians. It's outrageous. The moral injury that the pharmaceutical industry inflicts on these families is also a crime. There are many crimes here. There's the crime of producing a product that's toxic and trying to sell it. There's the crime of mandating this toxic product for people who don't want it. And all of the gaslighting that goes on of vaccine-injured children and their families—it's just outrageous. I've never seen a level of moral injury like that. I don't know what to do about it. I'm at my wit's end. I want to learn from many of these parents who've been in this fight for a long time because this work is hard on the soul. The pharmaceutical industry is evil at this point.

One trillion dollars a year in autism costs is greater than the U.S. Defense Department budget, which is the largest single line item in the U.S. budget. There's no plan for how to pay for this.

We create one hundred thousand new autism cases in the U.S. every year because of this insane vaccine schedule that's bloated and completely untethered from medicine and health.

HG: Do you feel alone in this work?

TR: No. There's a beautiful community that's forming—and there are various labels for it. Sometimes the parents of vaccine-injured kids are called "warrior moms," "warrior mamas" or "warrior dads." There are also a number of leaders who have pushed into this space. Bobby Kennedy is extraordinary. Andy Wakefield does beautiful work. Del Bigtree is on TV every Thursday talking about these issues. I've actually found my tribe. I've found a group of people who are so beautiful. It's just incredible, and yet you lose friends and family. The costs of working on this issue are enormous because there are various people who don't get it and don't want to get it. They are terrified by what I've discovered and don't want that information getting out. You lose some and gain some other friends along the way.

HG: You seem to have taken on the burden and the emotion of these families despite not being believed when talking to your own friends and family about this.

TR: I am more than happy to be a voice for families. I know their stories, and I'm more than happy to be a warrior in support of them, alongside them and with them. It's a family at this point. Everybody in the movement loses friends and family. The losses are enormous. There are parents who lose their kids to SIDS [sudden infant death syndrome]. There are families whose children lose speech and eye contact. I've lost friends and lovers over this topic, but it's essential work. There is no other choice. We have to fix this as a society. The course that the U.S. is on right now is toward collapse. The U.S. is headed over a cliff because of autism costs. We create one hundred thousand new autism cases in the U.S. every year because of this insane vaccine schedule that's bloated and completely untethered from medicine and health. And then there are many other toxic chemicals that we put into kids. We have to resolve this.

What's beautiful about being around all these warrior moms and dads and working together is these parents have figured out what it's going to take legislatively to end these epidemics. They have more wisdom than everybody at the CDC put together. There's this thing in the social science literature called "popular epidemiology." It's epidemiology from below. It's the wisdom that people gather through lived experience and their own independent research, common sense and logic. What we're seeing is this remarkable moment in the history of popular epidemiology where parents have figured out the causes of an epidemic a good twenty years before the mainstream medical and scientific community has figured it out. It's remarkable and fascinating. On the other hand, it's heartbreaking. There are so many crimes here. There's the crime of producing a toxic product and trying to sell it.

HG: Do you see hope for the future?

TR: I do. The moms sharing their stories have given me hope. There's only one way that this can turn out, and it's the right way. It's elected officials listening to Bobby Kennedy and doing the right thing and putting fewer toxic chemicals into kids. That means rolling back the vaccine schedule to maybe one vaccine or none. I personally think the notion of a vaccine schedule itself is barbaric. One-size-fits-all medicine is absurd in 2020. What is necessary is personalized and individualized medicine.

Functional medicine and integrative medicine know how to respond to coronavirus much better than mainstream medicine. We're in this moment where paradigms should be shifting. The current paradigm doesn't work. We know what the better paradigm is, but politically and economically it's difficult to get there because there are a number of stakeholders who are getting rich off of the old broken paradigm. They don't want to change their ways. They can buy off the political system, and they can buy off the media. This paradigm should have shifted twenty years ago. We should have recognized right away what was happening with the autism epidemic and that it was linked to environmental factors, but that hasn't happened yet.

There are hundreds of thousands of parents who have woken up to this issue, parents who understand what happened to their kid. They're becoming an electoral force. Some elected of-

ficials are starting to get it. More are going to get it every day. As the costs and cases of autism continue to mount, sooner or later the political system is going to have to turn to the Weston A. Price Foundation and to Bobby Kennedy and to Del Bigtree and to warrior moms and dads and to people like me and you because we actually do know the way out of this terrible valley. If Bobby Kennedy was head of the CDC, we could end the autism epidemic in twenty-four hours. I genuinely believe that. If we had a proper head of the CDC, if we had a proper head of the FDA, we could end the autism epidemic in twenty-four hours. We know how to do that now.

HG: That would be amazing to see happen. You said "popular epidemiology," right? We call that the "up-wising" of the crowds. We're getting wisdom from the grassroots, and I think that can change everything. I'm happy to hear you say that it's happening. Before we close, I want to ask you the question I pose at the end of a podcast. If listeners could do one thing to improve their health, what would you recommend?

TR: Don't ever get another vaccine! I think it's simple. I think the evidence is overwhelming that the flu shot is not a good idea. It has all sorts of toxic chemicals that you don't want in your body, and it's very bad at stopping the flu. That's the shot that a lot of adults get. Shingles shots are also a bad idea. The best available data on vaccine benefits and harms comes from Peter Aaby and Christine Stabell Benn at the Bandim Health Project (bandim.org/). Their research shows that every single vaccine on the U.S. schedule causes more harm than benefits. They have an extraordinary forty-year dataset. They have looked at the numbers for forty years. None of the vaccines on the U.S. schedule produces more benefits than harm. That's the best scientific evidence that we have. I would not vaccinate my kids, and I would not allow my parents to get the flu shot or the shingles shot. When shots are offered at work, I wouldn't get those either. The evidence is terrible in support of these products. None of the vaccines on the U.S. schedule has ever been tested against a saline placebo. That's a scientific crime. It's a crime against humanity. These things are not good for people's health. The evidence is overwhelming that vaccines are causing harms for all levels of society. Don't get another shot.

Wise Traditions podcast episode 277 was recorded on November 6, 2020.

None of the vaccines on the U.S. schedule produces more benefits than harm.

All Thumbs Book Reviews

The Bordeaux Kitchen: An Immersion into French Food and Wine, Inspired by Ancestral Traditions
By Tania Teschke
Primal Blueprint Publishing

Eating nourishing foods is satisfying. Understanding *how* those foods nourish brings a deeper level of satisfaction still. Tania Teschke's book *The Bordeaux Kitchen* addresses both what we should eat and why. Much like the iconic *Nourishing Traditions* by Sally Fallon Morell, *Bordeaux Kitchen* educates on a number of levels. It provides context for understanding which foods nourish best, their provenance and how to prepare them. And *Bordeaux Kitchen* adds a little French flair *à la fois* (at the same time).

One hundred eighty traditional French recipes make up three-quarters of the book. They are exquisitely presented, with plenty of details. The author includes recipes for beef, fish and seafood, lamb, offal, fats, pork, poultry and more (even desserts).

Early in the book, the author reveals what stoked her passion for the traditional French lifestyle. Due to a personal health crisis several years prior, Teschke had already begun exploring ancestral health ways. But, living with her family in Bordeaux, the positive effects of the French way of eating—cooking from scratch, eating with intention, using fresh, seasonal, nutrient-dense ingredients and animal fats—began to make a serious impact on the family's health and well-being. Teschke, in particular, saw an improvement in her digestive and hormonal function by cutting out sugar and making other lifestyle changes (such as more sleep and less screen time) inspired by the French.

The tenets of *The Bordeaux Kitchen* correspond in many respects to the Wise Traditions principles. These include recognizing the importance of animal fats from high quality sources, avoiding overly processed foods and focusing on nutrient density. Number seven is a departure from Wise Traditions principles, however: "Pair your meals with the right wine and savor your food slowly with family and friends."

The family-and-friends half of that equation fits right into Wise Traditions principles, but the second is hard to grasp because I personally abstain from alcohol. That said, I recognize that a French-inspired cookbook would be overlooking a great deal were it not to include some guidance on wines. One tip I appreciated was that of "regional pairings"—that is, choosing a wine that is from the same region as the dish.

Throughout the book, time and again, Teschke guides us back to the land, traditional foods and time-honored ways of preparing them. On the cost of good food, she notes: "Ancestral eating is worth the time and [financial] investment. The nutrient-density of real, high-quality foods, in my experience, is an investment in your health."

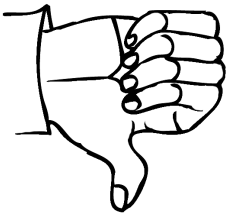
On the subject of fats, she writes: "It turns out that the 'French Paradox' [a term coined in 1991 by Dr. Serge Renaud, a professor at the University of Bordeaux, to describe the seemingly contradictory idea that French people can eat duck fat and drink red wine while maintaining low rates of cardiovascular disease] is actually not a paradox at all. Instead, it is the very fats and nutrient-rich foods used in cooking, and indeed, the very essence of the traditional French way of life that support good health."

Teschke's comments on salt: "Another secret of French cooking is the use of mineral-rich, unrefined sea salt. Salts harvested from the sea (as well as mountain salts) contain trace minerals we need to survive in a form that is readily absorbed by our bodies." On eggs, she says: "Eggs are nutrient dense and are a rich source of saturated fat, fat-soluble vitamins, and water-soluble nutrients such as choline." On nuts and seeds: "Most nuts and seeds can be soaked in water overnight, so as to encourage them to sprout, releasing enzymes and phytates that might otherwise interfere with digestion and absorption." (Continued on Page 73.)

The tenets of *The Bordeaux Kitchen* include recognizing the importance of animal fats from quality sources, avoiding overly processed foods and focusing on nutrient density.

All Thumbs Book Reviews

Heroes of a Pandemic:
Those Who Stood Up Against COVID-19
By Anant Naik
Ingram Spark Publishing



When we saw the ad for this book, we couldn't resist ordering it. This book is about twenty-six small pages with an average of one sentence per page. The reader can get through it in two minutes—with a one-minute coffee break. It is dedicated to St. Anthony Fauci, MD, and to those who have isolated us from each other for more than a year. It explains that the virus originated in a local food market in China and quickly spread out of control around the world. A vaccine is the weapon that will win the war against Covid-19, and if it ever dares to return, our superheroes will quickly send it away.

Naik starts off obviously referring to the original theory that the dreaded virus made its grand entrance when one of those wacky Chinese bought an infected bat from a local market and consumed it. My wife, who is Chinese, adamantly confirms that Chinese do not eat bats. So, already the whole narrative starts off with a lie and not a very clever one. But I'm sure they got everything else right.

For example, I'm sure the weapon of choice, an untested gene therapy deceptively mislabeled as a vaccine, will work great. Medical experiments never go wrong. Pharmaceutical companies with no liability never cheat. Everything else they have tried has worked so well. After turning the world into a prison ("lockdown" is a prison term), outbreaks continue, and we need more lockdowns. One of my relatives was in the hospital recently. No visitors allowed. Traditionally, even prisoners were allowed visitors —inmates of hospitals and nursing homes are not. These policies may vary by area, but that has been my personal experience in Virginia, so don't tell me it's not really happening.

Then there is this little gem: "The world recognized the glue that bound society tighter; These were the truckers, taxi drivers, grocery store employees and fire fighters." Hey, I like all of these, but is something missing? The similarity between "society" and "social" is not a coincidence. The number-one key feature of society is social contact. That doesn't even rate a mention here. The implication is that social contact is not important. Never mind the studies showing that inmates in solitary confinement deteriorate psychologically, mentally and physically. Never mind skyrocketing rates of domestic abuse, depression and suicide. Never mind the sick and elderly suffering and dying alone in hospitals and nursing homes.

St. Anthony and his mindless minions with delusions of heroism make the Grinch look like a nice guy. They have done their best to shut down Halloween, Thanksgiving and Christmas; Super Bowl parties; all parties; weddings; family picnics; and grandparents hugging grandchildren. Millions worldwide have had their careers and lives destroyed. But it's all worth it. At least you are safe from a virus with a survival rate of over 99 percent.

Is it surprising that a self-hating and suicidal culture would consider people like this to be heroes? That said, there *are* heroes out there in every category listed at the beginning of this book. Real heroes, like America's Frontline Doctors and almost everyone censored by YouTube. Dr. Cameron Kyle-Sidell warned last year that ventilators are not a good idea for Covid patients unless you want to kill them and get a lot of money from the government.

This book exceeded my expectations. I expected it to serve up a malodorous menu of hot, steaming mule muffins, road apples and buffalo bagels, but I'm impressed with how high that pile can get in so few pages with so few words. Apparently, it is aimed at a three-year-old audience suffering from microcephaly. If you can still think (despite public education and news media attempts to stop all such subversive behavior), you might want to avoid this book. If you can't resist and must wade through this infantile drivel, do it on an empty stomach. This one broke the thumb-o-meter. The thumb could not be more DOWN. Review by Tim Boyd

The implication is that social contact is not important.

All Thumbs Book Reviews

Toxic Legacy: How the Weedkiller Glyphosate Is Destroying Our Health and the Environment
By Stephanie Seneff, PhD
Chelsea Green Publishing

Monsanto is the company just about everyone loves to hate. And their marquee product—Roundup by retail name, but chemically glyphosate—is possibly the number-one herbicide in the world. Glyphosate now is found in samples of air, water and soil across almost the entire planet. Though Monsanto, bought up by German-based Bayer in 2018, is no more (at least in name), the use and legacy of glyphosate continues.

Is glyphosate as bad as some claim? What role does it play in both plant and human health and disease? Does science support or contradict the fear that the product instills in some people? In *Toxic Legacy*, Massachusetts Institute of Technology (MIT) scientist Stephanie Seneff turns her attention—and her more than credentialed resume—to these and other questions. Often, people try to brush aside those who criticize modern agriculture by saying that the critics lack the technical and other expertise necessary to sit at the table. Seneff, with her stellar credentials, is not so easily dismissed.

Her takeaway, after almost a decade of intense research, is as follows: "There is a growing body of scientific evidence that shows that glyphosate is a major factor in several debilitating neurological, metabolic, autoimmune, reproductive, and oncological diseases. This organic chemical compound. . . is more toxic to all of life than we have been led to believe. Glyphosate's mechanism of toxicity is unique and diabolical. It is a slow killer, slowly robbing you of your good health over time, until you finally succumb to incapacitating or life threatening disease."

But how does glyphosate achieve all its wondrous evils? What accounts for its deleterious impact on disparate ecological systems—from the soil microbiome to cereal grains to fungi and other pathogenic microorganisms—and for its contributions to autism and cancer in humans? *Toxic Legacy* focuses attention on two key aspects of glyphosate's chemical and biological actions. The first involves its role as a chelator. Research has long shown that Roundup reduces the ability of plants to take up necessary minerals and other nutrients. This means that plants grown in glyphosate-contaminated soils are less healthy and less nutrient-dense. However, the impacts also extend beyond plants. Glyphosate also alters the soil food web in very

BOOK REVIEWS IN **Wise Traditions**

The Weston A. Price Foundation receives two or three books *per week*, all of course seeking a Thumbs Up review. What are the criteria we use for choosing a book to review, and for giving a Thumbs Up?

- First and foremost, we are looking for books that add to the WAPF message. Dietary advice should incorporate the WAPF guidelines while adding new insights, new discoveries and/or new therapies.
- We are especially interested in books on the fat-soluble vitamins, traditional food preparation methods and healing protocols based on the WAPF dietary principles.
- We look for consistency. If you talk about toxins in vaccines in one part of your book but say you are not against vaccines in another part of your book, or praise fat in your text but include recipes featuring lean meat, we are unlikely to review it.
- We do not like to give Thumbs Down reviews. If we do not agree with the major tenets expounded in a book sent to us, we will just not review it. However, we feel that we have an obligation to point out the problems in influential or bestselling books that peddle misinformation, and for these we will give a negative review. We also will give a negative review to any book that misrepresents the findings of Weston A. Price.
- If you want us to review your book, please do not send it as an email attachment. Have the courtesy to send us a hard copy book or a printout of your ebook or manuscript in a notebook or coil binding.

troubling ways. Seneff explains, "Glyphosate use was one of the biggest factors in the proliferation of pathogenic fungi. . . . [G]lyphosate in soil and water is likely contributing to increases in fungal infections." As glyphosate empowers pathogenic fungi to thrive, evidence shows they are not only damaging the soil but turning their super-powered attention to us.

Unfortunately, it doesn't end there. Glyphosate also has a protein problem, best grasped by understanding how this chemical works to stop "weeds." Says Seneff, "Glyphosate's effect on plants is to disrupt the shikimate pathway, a metabolic pathway that plants use to produce the aromatic amino acids tryptophan, tyrosine, and phenylalanine, which are precursors to proteins, vitamins, and other kinds of bioactive substances." She continues, "When glyphosate disrupts the shikimate pathway, it kills the plants." She also notes that "many of the microbes in our bodies do possess the shikimate pathway." Most of the book's middle section focuses on this issue, describing how Roundup wreaks havoc on all sorts of aspects of the human body—from the microbiome to the dozens of molecular and chemical processes that glyphosate drives astray.

Not only does glyphosate interfere with the production of crucial amino acids, but it also can replace one of the most important amino acids in our body: glycine. Glycine is quite similar to glyphosate, and it seems that biological systems where glyphosate is in high supply will readily use it as a replacement for glycine—with absolutely disastrous results. It is like swapping out diesel for gas accidentally at your next fill-up.

I could go on, highlighting study after study that shows how glyphosate causes problems or clear harm at almost every joint and juncture of the ecological system, from water fleas—a foundation of the entire aquatic food chain—to the human gut. But then you wouldn't need to read the book, which you should. Well footnoted and organized, easy to read even when more technical, *Toxic Legacy* is a great resource if you want a good primer on the issue of our poisoned-on-purpose food supply.

Given the immense evidence that glyphosate is a major contributor to modern chronic diseases and all sorts of other problems, why is the medical community almost completely silent about its pervasive dangers? Here is Seneff's answer: "There is little incentive to identify and correct the root causes of chronic disease or empower people to keep from getting sick in the first place when there's so much profit to be made. Quite the opposite, in fact. The pharmaceutical industry thrives when America is unhealthy. Vibrant good health harms its bottom line." Notwithstanding this grim conclusion, *Toxic Legacy* gets two thumbs up.

Review by John Moody

(*The Bordeaux Kitchen*, continued from page 70.)

Honestly, I was enchanted by the book and its little charming bits of information. (Did you know, for example, that "every cheese has a season"?!) And I haven't yet mentioned the glorious photographs, which include mouth-watering images of leg of lamb, step-by-step pictures for learning to filet a fish and multiple photos of every conceivable iteration of pâté!

Although some of the recipes were unfamiliar to me, most require very few ingredients and are far from intimidating. Teschke presents each in an easy-to-follow format. For me, the proof was in the pudding (or should I say "in the baked apricot with lavender"). Every dish I have tried to make has been successful. The veal liver recipe turned out perfectly for me. And my pork meat pâté was so popular, there were no leftovers.

At first, I was overwhelmed by the heft of the book—a hardcover tome of over six hundred pages. Once I cracked it open, though, I realized why it was so long: Teschke leaves no stone unturned. In addition to walking us through the history of French cooking and recipes, she goes to the trouble of including highlights of food culture in both the U.S. and France. She also provides resources for further study on topics as diverse as the microbiome and electromagnetic frequency (EMF) radiation, and, in a cooking glossary, defines terms such as "trussing" (to tie poultry using a special trussing needle) and "sous vide" (a cooking method that uses plastic bags at temperatures just below 100° C, a technique that Tania points out is neither traditional nor advisable).

This book, at once educational and practical, merits an enthusiastic thumbs up. At one point, Teschke comments: "Unfortunately, even for the French, particularly in bigger cities, the art of traditional cooking is disappearing, as busy people succumb to the modern conveniences and temptations of fast and packaged 'foods.'" We are confident that this trend will turn around as more people come across books like *The Bordeaux Kitchen*.

Review by Hilda Labrada Gore

All Thumbs Book Reviews

Licensed to Thrive: A Mouth Owner's GPS to Vibrant Health & Innate Immunity
By Dr. Felix Liao, DDS
Crescendo Publishing LLC

The first time I read Dr. Weston A. Price's *Nutrition and Physical Degeneration*, I was shocked and awed. The words were good. . . but the pictures! The images Dr. Price captured conveyed, by themselves, all that anyone should ever need to know about the unrelenting damage the "displacing foods of modern commerce" do to humanity.

So, any author who includes images from Price's work immediately warms my heart (and if you haven't read Price's book, you should!). Pictures are a big part of Dr. Felix Liao's book, *Licensed to Thrive*, one of numerous new titles focusing on the connection between dental health and whole health.

Liao builds on the work of many others. In addition to Dr. Price, influences include Dr. Stephanie Seneff, Dr. David Brownstein, Sally Fallon Morell and dozens more. As a result, well-versed Weston A. Price Foundation members will find a fair bit of information that they are already familiar with. The question is, what does Dr. Liao add to this already large pile of information?

At its core, the book provides practical steps for those who have significant oral health and development issues. With its starting assertion that "oral health is more than healthy teeth," *Licensed to Thrive* seeks to lay out what robust oral health looks like, how it connects to other areas of health and disease and what you can do if you suffer from certain oral health issues.

I enjoyed Liao pointing out that health issues are often cyclical in nature. A mouth issue can lead to a health issue (like weight gain), which then creates additional mouth issues (such as sleep apnea). That issue then creates other health issues, and those make the ones that caused them in the first place even worse. Moreover, a problem in one part of the body can lead to a faraway problem in another, leading to yet another problem in another part of the body. These cycles of illness and disease feed upon each other as people feed upon the low-quality foods that rob them of health and life. According to Liao, it isn't enough to break the cycle; one must create new cycles that support—rather than steal—health.

It isn't enough to break the cycle; one must create new cycles that support—rather than steal—health.

For some readers, *Licensed to Thrive* may step on some sacred cows. For example, Liao discusses the problems with drinking cold beverages with meals and points out health connections you may not be aware of, such as the possibility of adult tongue ties causing pain and other problems, or the connection between certain misshapen body parts and improper thyroid function. He also describes the connection between pot belly, sleep apnea and erectile issues in men.

The book is slightly sales-pitchy, as Dr. Liao's work on "impaired mouth syndrome" has led to the creation of oral appliances that seek to correct issues related to improper form and function. Liao also discusses the benefits people may derive from orofacial myofunctional therapy (OMT). The sales pitch, though, is driven by Liao's success in helping people and his desire to equip others to replicate his work repairing the damage our food system and lifestyles have done to our bodies.

There is a great deal to consider in this over-three-hundred-page book. Liao's approach to treating problems is both holistic and compelling, as he constantly pushes us to move past symptoms to root causes, focusing on what we can do to fix the root causes rather than throwing time and money away chasing symptoms. Perhaps my biggest (small) quibble in reading this book was that some readers who are interested in pursuing certain techniques to improve their health or address an issue may be left wanting more detailed information and guidance. But perhaps one of Dr. Liao's other books already covers these details, so I may just need to go and read the rest of his works! Two thumbs up.

Review by John Moody

Tim's DVD Reviews

Medical Racism: The New Apartheid
Produced by David Centner, Robert F. Kennedy, Jr., Kevin Jenkins, Rev. Tony Muhammad and Curtis Cost
https://medicalracism.childrenshealthdefense.org/

People, especially minorities, have noticed a pattern relating to information coming from the U.S. government. Clue number one is seen in an interview with a Cherokee man who does not believe anything U.S. government officials say because they eradicated his people with smallpox.

Many African-Americans and others remember the Tuskegee experiment that began in 1932 when black people were told, "we are doing this to cure you." Abuse of black slaves, including medical abuse, is also well documented going back well before 1865.

And it is not just all old news either. Here in the twenty-first century, the Centers for Disease Control and Prevention (CDC) deliberately omitted information showing race effects of measles-mumps-rubella (MMR) vaccination. Black children were found to be at much higher risk of autism when vaccinated early with MMR. Not only was the information left out; the CDC tried to destroy it.

The Mayo Clinic found that African-Americans have a much higher antibody response to rubella vaccination, making it much more dangerous for them. In 1989, as the *Los Angeles Times* reported, the CDC admitted that fifteen hundred low-income black and Latino kids were unknowingly involved in a measles vaccination experiment.

There is an increasingly clear connection between Covid and vitamin D. People with darker skin have less vitamin D because darker skin blocks it. For some reason, this important information isn't getting out there.

The World Health Organization (WHO) admits all polio in Somalia, Kenya, and a number of other countries is coming from polio vaccination. WHO is also still giving mercury-containing vaccines to African children.

The list of medical abuses coming from governments and medical establishments is long. Minorities are the most common victims. Those who know a little history see the pattern. The pattern doesn't stop there but eventually spreads to everybody, not just minorities. If you are counting on that fabled white privilege, you might want to think again.

The pattern is clear enough that it would seem that governments and medical systems have done their level best to completely destroy their own credibility. Apparently, they can't even get that right. Millions still trust the incompetent and corrupt system. Now, these same agencies are selling the coronavirus panic, with talk of mandatory vaccines. The Nuremburg Code is another forgotten relic of history. Informed consent is no longer required for medical treatment.

One favorite argument of abortion rights activists is that women have a right to their own bodies. "Our body, our choice." OK, do they have that right? Do we all have that right? Do they really believe that? This film does a great job of reminding us about the ugly and racist track record of agencies so many trust without question. The thumb is UP.

The list of medical abuses coming from governments and medical establishments is long.

Urgent! 5 Doctors Agree that COVID-19 Injections Are Bioweapons and Discuss What to Do About It
Health Impact News
https://healthimpactnews.com/2021/urgent-5-doctors-agree-that-covid-19-injections-are-bioweapons-and-discuss-what-to-do-about-it/

Drs. Larry Palevsky, Christiane Northrup, Carrie Madej, Lee Merritt and Sherri Tenpenny speculate on what is happening after people get injected with gene therapy, which is all the rage these days. Data are accumulating in the Vac-

Tim's DVD Reviews

All five doctors consider it a serious possibility that the injection is a bioweapon.

cine Adverse Event Reporting System (VAERS) database and elsewhere that injected victims are suffering severe side effects including death. What may be even more disturbing is the fact that many who have not been injected are also experiencing serious side effects from just being near those who have gotten the shots. The most common symptoms seem to be blood clots, menstrual disruption and flu-like symptoms.

All five doctors consider it a serious possibility that the injection is a bioweapon. It is not a vaccine, as Dr. Palevsky emphatically makes clear. It is not a cure, and no one claims it is. So, what is it, and why is it so heavily promoted? We have a product developed by companies with known criminal records, no liability and huge potential profits. Treatments like this have been tried before, with disastrous results. There is a swarm of obvious lies surrounding this whole subject. What could go wrong?

The doctors all agree that this is not normal shedding like you would see with a measles vaccine. Dr. Tenpenny thinks it might be the spike protein that is causing all kinds of problems. Along those same lines, Dr. Merritt speculates that spike proteins may generate prions, the misfolded proteins suspected of causing conditions like mad cow disease, leading to central nervous system deterioration.

Dr. Madej discusses the lipid nanoparticles and nanotechnology used in these injections. They can be used as biosensors. They can transmit and receive Wi-Fi and 5G. They could be spreading from one person to another. She notes that at least some kinds of phones seem to be emitting much more electromagnetic frequency (EMF) radiation than they were last year. She thinks EMFs are definitely part of what is going on.

However, the panel of doctors agrees that the biggest threat right now is neither a virus, a germ nor EMFs. The biggest problem is fear. It interferes with immune function. It interferes with cognitive function. It only makes things worse. One of the best suggestions is to get together with friends, family and people who are not afraid of each other as often as possible. The doctors also recommend treatments such as hydroxychloroquine, ivermectin and bentonite clay.

They explicitly do not recommend waiting on government or big medicine to solve anything. We lost these systems some time ago; they may pretend to help, but no real help is coming from them. I'm not sure it ever has. There are a lot of different ideas bandied about in the discussion. Some I agree with, some I'm not so sure, but I will give it a thumbs UP for the doctors' willingness to engage in a free exchange of ideas like they used to do in real science.

Vaccination Updates

TINY BUT TOXIC: NANOPARTICLES IN VACCINES

By Kendall Nelson, Director, *The Greater Good*

Nanotechnology, or "nanotech" for short, deals with the very smallest components of our world—atoms and molecules. As the Merriam-Webster definition of nanotechnology points out, it is hard for most of us to imagine just how infinitesimal the nanoscale really is, "since it involves objects with dimensions of 100 billionths of a meter. . . or less."[1] To better understand how small a nanometer is, consider that a sheet of paper is about one hundred thousand nanometers thick. Or, as the National Nanotechnology Initiative (NNI) explains, "[I]f a marble were a nanometer, then one meter would be the size of the Earth."[2]

The NNI, a U.S. government research and development initiative, coordinates efforts to "control matter at the nanoscale" across twenty different departments and independent agencies.[3] The NNI credits nanotechnology innovations with transforming nearly every industrial sector, including information technology, homeland security, transportation, energy and medicine.[4] Engineered nanoparticles also feature prominently in emerging "green" technologies such as renewable energy capture and lightweight, fuel-saving cars.[4,5]

Using nanotech, "materials can effectively be made stronger, lighter, [or] more durable," along with many other traits that industry considers advantageous.[4] As a result, nanomaterials have already entered wide-scale commercial use, with over one thousand nanomaterial-containing products on the global market.

"Nanomaterials" is an umbrella term encompassing nanoparticles, nanotubes, nanowires, quantum dots, carbon fullerenes (also known as "buckyballs") and more. Metallic nanoparticles are made either from pure metals (including silver, titanium, iron and others) or metal compounds (such as metal oxides). Organic and metallic nanoparticles are used extensively in consumer, textile, food packaging and industrial products, as well as by the biotech and pharmaceutical industries, including in vaccines.[6]

THE DOUBLE-EDGED NANOTECH SWORD

Despite the many advantages touted by industry, nanotech may best be described as a double-edged sword. A principal concern, already demonstrated by research on "first-generation" nanotechnology products, is that nanoparticles "inevitably" enter our bodies, and do so through many routes and at many different stages—including during their research, development, manufacture, use and even after they are discarded.[7]

Nanoparticles enter our bodies via both direct and indirect pathways. Methods of entry include as drugs and drug delivery vehicles, as well as through dermal, pulmonary and gastrointestinal exposure.[6,8]

In general, the impact of nanoparticles on the body depends on "chemical composition, shape, surface structure, surface charge, aggregation and solubility, and the presence of 'functional groups' of other chemicals."[7] The Belgium-based Health and Environment Alliance explains that nanomaterials are inherently toxic due to their extremely small size: "Smaller particles have a greater reactive surface area than larger particles, are more chemically reactive and produce greater numbers of reactive oxygen species that include free radicals."[7] Researchers describe the metals silver, gold, aluminum and copper, for example, as "inert in their bulk form" but exhibiting increased toxicity as particle size decreases.[6]

Unlike larger particles, nanoparticles may be taken up by the cell's mitochondria and nucleus.[7] Nanoparticles can interact with proteins and enzymes and alter gene expression, affecting biological behavior at the organ,

Nanoparticles "inevitably" enter our bodies, and do so through many routes and at many different stages—including during their research, development, manufacture, use and even after they are discarded.

tissue, cellular, subcellular and protein levels. Because of this, nanoparticle toxicity may result in increased oxidative stress; inflammation; damage to proteins, membranes and DNA; and cellular death.[7]

VACCINE NANOCONTAMINATION

In 2017, quality-control investigations by Italian researchers Antonietta M. Gatti and Stefano Montanari raised awareness about the problem of micro- and nanocontamination of vaccines. Concerned with the number and seriousness of reported adverse effects following childhood vaccination, the husband-and-wife research team developed a novel method of analyzing physical vaccine contaminants using a field emission gun environmental scanning electron microscope. They summarized the results of their research in a study titled "New quality-control investigations on vaccines: micro- and nanocontamination," published in the *International Journal of Vaccines & Vaccination*.[9]

Gatti and Montanari sought to detect the possible presence—and identify the chemical composition—of inorganic particulate contaminants in forty-four types of vaccines manufactured in Italy and France.[9] The researchers analyzed vaccines against chickenpox (varicella), diphtheria, *Haemophilus influenzae* type b, hepatitis B, human papillomavirus, influenza, measles, meningococcus, mumps, pertussis, pneumococcus, polio, rubella, tetanus, typhoid, yellow fever and several others. To ensure the accuracy of their results, three different members of the research team counted all identified particles three times each, resulting in an error rate of less than 10 percent.

The scientists' analyses verified the expected presence of saline and aluminum salts, components declared by the vaccine manufacturers. However, in all but one sample, the researchers also found micro-, sub-micro- and nanosized inorganic foreign bodies *not* declared by manufacturers—ranging from one hundred nanometers to about ten microns in size. These foreign bodies included single particles and clusters of particles as well as aggregates (organic-inorganic composites) resulting from "an interaction of the inorganic particulate matter with the organic part of the vaccine."[9] The clusters contained anywhere from two to seven different metals.

Across vaccines and manufacturers, the researchers found a wide range of metallic nanocontaminants (either alone or in alloy form), including aluminum, antimony, bismuth, calcium, chromium, iron, lead, nickel, platinum, scandium, silicon, silver, stainless steel, tungsten and vanadium—contaminants that cannot be considered benign. For instance, chromium is linked to carcinogenic and mutagenic effects, while lead causes central nervous system damage in children and can lead to peripheral neuropathy in adults. Nickel can be both carcinogenic and a potent inducer of DNA lesions.[10]

Illustrating the study's wide-ranging results, tungsten appeared in vaccines manufactured by GlaxoSmithKline (GSK), Novartis, Pfizer and Wyeth, either as single particles (in eight of forty-four vaccines) or in aggregated form (two vaccines). Chromium (alone or aggregated with iron or nickel) appeared in twenty-five vaccines made by six different manufacturers. Seven vaccines—notably the human papillomavirus (HPV) vaccines manufactured by GSK and Sanofi—contained lead or lead aggregates, while stainless steel was detected in thirteen vaccines. The measles, mumps and rubella (MMR) vaccine manufactured by Sanofi Pasteur contained (either singly or in combination) twelve different metals (aluminum, antimony, bismuth, chromium, calcium, iron, nickel, platinum, scandium, silicon, silver and vanadium).

A critical point emphasized by Gatti and Montanari is the fact that the inorganic particles identified were neither biocompatible nor biodegradable.[9] In other words, such particles are biopersistent and can induce effects that may become evident either immediately after injection or after a period of time. As the two scientists explained, not only can "microparticles, nanoparticles and aggregates. . . stay around the injection site forming swellings and granulomas," but the non-biodegradable foreign bodies can also "be carried by the blood circulation"—getting distributed virtually anywhere in the body, including in the organs and microbiota, where they are likely to elicit a chronic inflammatory response. Additionally, the Italians noted, nanoparticles in vaccines can enter cell nuclei and interact with cellular DNA.

The Italian researchers hypothesized that vaccine micro- and nanocontaminants could explain both immediate and delayed adverse events following vaccination, particularly because the contaminants' "final destination" is likely to vary from person to person. If nanocontaminants reach the brain rapidly, individuals may experience damage within a few hours of vaccination. On the other hand, it is also plausible that contaminants could travel to the microbiota and there interfere with the production of enzymes necessary to carry out critical neurological functions, prompting symptoms weeks later.

In their conclusions, Gatti and Montanari hypothesized that the extensive vaccine contamination they observed was likely unintentional and possibly due to polluted components or flawed industrial filtration. Long-time vaccine awareness advocate Dr. Sherri Tenpenny, an osteopathic medical doctor who is board-certified in three medical specialties and has over fifty thousand hours of vaccine research under her belt, has

indirectly raised a different possibility. Pointing out that the one veterinary vaccine tested by the Italian researchers proved to be the only product (out of forty-four vaccines) free from contamination, Dr. Tenpenny noted that if the problem were indeed solely due to "sloppy manufacturing," the pet vaccine should have displayed the same nanocontamination.[10]

COVID INJECTIONS: THE NEW NANOPARTICLE FRONTIER

Setting aside the issue of whether the nanoparticle contamination found by the Italian researchers was accidental, there is no debate that some nanoparticles are an intentional feature of twenty-first-century vaccines. Vaccine scientists are persuaded that nanomaterials not only offer an "ideal" solution to the challenges plaguing traditional vaccines—problems such as "weak immunogenicity. . . , intrinsic instability in vivo, toxicity, and the need for multiple administrations"[11]—but can also serve multiple purposes, including delivering antigens, functioning as adjuvants and mimicking viral structures.[12]

The Covid-19 "pandemic" has propelled new and emerging nanotechnologies onto the vaccine front lines, with nanotechnology a central feature of the two nucleic-acid-based messenger RNA (mRNA) injections developed by Moderna and Pfizer-BioNTech. Whereas conventional vaccines claim to stimulate an immune reaction by introducing a weakened or inactivated germ into our bodies (as well as adjuvants such as toxic aluminum), the two Covid injections—a form of gene therapy—instead carry a chemically synthesized piece of mRNA (the genetic material that makes DNA code into a protein) into the cells. The synthetic genetic information in the Covid injections reportedly instructs the recipient's cells to produce a piece of the SARS-CoV-2 spike protein from within, on the premise that our bodies will then make neutralizing antibodies to fight against future coronavirus infection.[13]

The synthetic mRNA in the two Covid injections would go nowhere without fatty molecular envelopes called lipid nanoparticles (LNPs)—the "carrier systems" that protect the fragile mRNA payload from degradation and allow it to make it into the cells.[14] In clinical and in vitro studies, LNPs are also making inroads into modern oncology, serving as "promising" carriers for chemotherapeutic agents that would otherwise be "chemically and biologically fragile or present severe side effects."[15]

In order to hide the mRNA from our immune system, which would ordinarily kill the foreign material once injected into our bodies, the LNPs in the two Covid vaccines are coated with a potentially dangerous substance called polyethylene glycol (PEG) using a process called "PEGylation." PEGylated LNPs and PEG are not new to the drug market, but this is the first time they have been used in vaccines. The inclusion of PEG in both the Moderna and Pfizer injections is troubling in light of PEG's well-documented immunogenicity. A large and growing body of scientific literature shows that PEGylated compounds often trigger the formation of anti-PEG antibodies, which in some people leads to "hypersensitivity reactions. . . entailing severe allergic symptoms with occasionally fatal anaphylaxis."[16] A study published in 2016 by University of North Carolina researchers found that up to 72 percent of people may harbor anti-PEG antibodies—at levels, in about 7 percent of people, high enough to predispose them to anaphylactic reactions.[17]

In a corporate prospectus submitted to the Securities and Exchange Commission (SEC) in late 2018, Moderna acknowledged the following—hardly reassuring—information:

> [T]here can be no assurance that our LNPs will not have undesired effects. Our LNPs could contribute, in whole or in part, to one or more of the following: immune reactions, infusion reactions, complement reactions, opsonation reactions, antibody reactions including IgA, IgM, IgE or IgG or some combination thereof, or reactions to the PEG from some lipids or PEG otherwise associated with the LNP. Certain aspects of our investigational medicines may induce immune reactions from either the mRNA or the lipid as well as adverse reactions within liver pathways or degradation of the mRNA or the LNP, any of which could lead to significant adverse events in one or more of our clinical trials.[18]

The Covid-19 "pandemic" has propelled new and emerging nanotechnologies onto the vaccine front lines.

Was this why Moderna and Pfizer excluded people with a history of severe allergic reactions from their clinical trials, while quietly telling doctors "to look out for such reactions in trial participants who weren't previously known to have severe allergies"?[19] By mid-May, five months into the two mRNA vaccines' emergency use authorization, the Vaccine Adverse Event Reporting System (VAERS) had received almost two thousand reports of allergic, anaphylactoid or hypersensitivity reactions following receipt of the Pfizer and Moderna injections—and another two hundred reports following the Janssen/Johnson & Johnson Covid injection.[20] The latter contains polysorbate 80, which is structurally similar to PEG and similarly associated with anaphylaxis and hypersensitivity reactions.[21] Investigations indicate that PEG is the likely culprit behind many of these potentially life-threatening allergic reactions.[22,23]

MORE LIPID DANGERS

Dr. Vanessa Schmidt-Kruger, a cell biologist with over twenty years' experience in molecular medicine, has extensively researched and assessed Pfizer's clinical trial methodology. On January 30, 2021, she expressed grave concern about trial shortcomings during testimony at a hearing of the German Corona Extra-Parliamentary Inquiry Committee.[24]

Among several important points, the scientist emphasized the risks of the LNP technology in injections intended for healthy individuals. While being careful not to "completely malign" what she called a "superb technology," the cell biologist stated that "the toxicity is still too high," making it "much too early" to roll out for general population use. (In her view, the risk-benefit ratio is different for cancer patients.)[24]

Dr. Schmidt-Kruger explained that Pfizer's Covid injection includes four different types of lipids: a non-toxic "helper lipid" called DSPC; the positively charged (cationic) PEG component; cholesterol; and another cationic—and "very very toxic"—lipid (called ALC-0315) that forms up to 50 percent of the LNP. The scientist noted that because DNA strands have a negatively charged backbone, cationic lipids can interact with DNA and create strand breaks, and also interact with negatively charged lipids in the membrane of the mitochondria—the cellular powerhouses that produce energy. This can set in motion a series of toxic reactions: destruction of the mitochondrial membrane, formation of free radicals that damage the cell, disruption of ion balance, loss of cellular function, and DNA damage. Ultimately, the cell will either self-destruct or turn into a cancer cell.[24]

Recently attracting attention is the fact that Moderna's Covid injections also contain a proprietary cationic lipid, called SM-102, used in combination with PEG, DSPC and cholesterol in the formation of its LNPs.[25] According to the SM-102 safety data sheet, SM-102 is "for research use only, not for human or veterinary use," is harmful if swallowed, causes skin and eye irritation, can be fatal in contact with skin and is "very toxic to aquatic life with long lasting effects."[26] Despite data sheet indications that SM-102 is suspected of causing cancer, Moderna performed no carcinogenicity studies on the SM-102 component of the vaccine.[27] The safety data sheet also lists suspected damage to fertility and unborn children, and known damage "to the central nervous system, the kidneys, the liver and the respiratory system through prolonged or repeated exposure."[26]

Commenting that LNPs are "always damaging to cells," Schmidt-Kruger described the findings of in vivo animal studies in which inhaled long-lasting LNPs caused DNA strand breaks in the lungs, triggering serious lung disease or lung cancer. Studies have also identified LNP uptake—and DNA strand breaks—in the spleen. Possible consequences of LNP transport in the blood, Schmidt-Kruger noted, include thrombosis (blood clots) and hemolysis (rupturing of red blood cells), with the latter leading to hypoxia (oxygen deficiency).[24]

In fact, researchers have known for more than a decade that LNPs composed of cationic lipids, PEG and cholesterol can induce multifaceted toxicities and cause dangerously low platelet counts (a condition called thrombocytopenia).[28] The Moderna and Pfizer mRNA injections have both been linked to immune thrombocytopenia (ITP), a disorder that can lead to easy or excessive bruising and bleeding.[29] Researchers also suspect that the key technology used to make the Johnson & Johnson (J&J) and Oxford/AstraZeneca injections may be linked to a type of blood clot called cerebral venous sinus thrombosis (CVST) seen in combination with low platelets in some vaccine recipients.[30] The problem prompted temporary pauses of the J&J and AstraZeneca injections in the U.S. and two dozen other countries.[31,32]

In the preclinical animal trials, Pfizer-BioNTech injected rodents with LNPs carrying the mRNA of a bioluminescent enzyme called luciferase (rather than the mRNA of the SARS-CoV-2 spike protein) in order to track the lipids' distribution in the body. This procedure demonstrated that the lipids traveled from the muscle to the plasma and organs (including the liver, spleen, adrenals and sexual organs) in a matter of fifteen minutes—"everywhere where blood flows." The majority of the cationic lipids—60 percent—ended up in the liver.[24]

How long the cationic lipids remain in human bodies is an unknown, according to Schmidt-Kruger, because the question has only been studied in rodents—but estimates are that they could remain in humans for four

to five months. In animals, the researchers found that the cationic lipids remained "for a very long time"—at least twelve days in the plasma and with a three-week half-life in the liver. (The researchers also found evidence of PEG lasting for at least six days.) Although the investigators emphasized that in healthy individuals the liver has a strong regenerative capacity, Schmidt-Kruger observed that the risks for individuals with liver disorders—including the possibility of organ failure—have been "completely swept under the carpet."[24]

Disturbingly, the animal studies also revealed that the red blood cells (RBCs), which are exquisitely sensitive to oxidative stress, were "massively damaged by the lipid nanoparticles." The moderate to strong reductions observed in both mature RBCs and immature RBCs (called reticulocytes) should be interpreted, according to Schmidt-Kruger, as "very clear signs of hypoxia." The cell biologist warned that the vaccines could, therefore, be particularly dangerous for people with cardiac disorders.[24]

Another point made by Schmidt-Kruger involves Pfizer's determination of the vaccine dose. Although Pfizer-BioNTech obtained the same results whether testing dosages using ten, twenty or thirty micrograms of mRNA, the companies settled on thirty micrograms, despite the fact that clinical trial participants in the higher dose groups reported more and stronger side effects, particularly after the second dose. Because the mRNA is wrapped in LNPs, the higher-microgram dosage comes with more LNPs as well as more mRNA.

BYPASSING THE BLOOD-BRAIN BARRIER

The blood-brain barrier (BBB) plays an important role in protecting the brain from circulating pathogens and toxins, and is "the most significant element responsible for the preservation of [central nervous system] homeostasis."[33] However, the BBB has long been a thorn in the side of a pharmaceutical industry eager to deliver drugs straight to the brain. In a 2018 study titled "Lipid nanoparticles: a novel approach for brain targeting," the authors suggested that lipid-based nanoparticle formulations like those used to create mRNA vaccines are the drug delivery answer that companies have been looking for due to the nanoparticles' "tremendous potential to bypass [the] BBB and. . . dodge the reticular endothelial system."[34]

Covid-19 vaccine trials did not evaluate the LNPs' ability to cross the BBB or the potential down sides of "brain targeting." However, according to Dr. Tenpenny, the spike proteins that our bodies theoretically will produce in response to Covid injections can cause loss of BBB integrity, leading to neuropathology and brain degeneration.[35] Tenpenny cites peer-reviewed studies indicating that spike protein disruption of certain genes or mutation of certain proteins could plausibly contribute to loss of speech and loss of facial recognition as well as conditions ranging from amyotrophic lateral sclerosis (ALS) and cancer to dementia and early Alzheimer's disease.[35-37]

Cellular and molecular biologist Dr. Judy Mikovits concurs that LNPs can enter the brain, and she warns that this may foster pathologic neuroinflammation, possibly leading to adverse effects like ALS or multiple sclerosis.[38] A recent paper titled "COVID-19 RNA based vaccines and the risk of prion disease" further backs up these claims, noting that long-term health effects of the Pfizer injections may include ALS, Alzheimer's and other neurodegenerative diseases.[39]

REPRODUCTIVE TOXICITY

In a 2018 study titled "Potential adverse effects of nanoparticles on the reproductive system," Chinese researchers pointed out that nanoparticles have been proven to bypass biological barriers and exert toxic effects on the brain, liver and kidney.[40] However, research on the reproductive toxicity of nanometer-sized materials has been neglected, they noted, even though nanoparticles can also pass through the barriers that protect reproductive tissues. Nanoparticles can then accumulate in and damage organs such as the testes, epididymis, ovaries and uterus. The resulting reproductive organ dysfunction may "adversely [affect] sperm quality, quantity, morphology, and motility or [reduce] the number of mature oocytes and [disrupt] primary and secondary follicular development."[40] The Chinese researchers also left little room for doubt that nanoparticles can cross the placental barrier, accumulate in fetal organs and "affect the development of the offspring."[40]

Dr. Michael Yeadon, UK microbiologist and former Pfizer vice president and chief scientific officer-turned-whistleblower, has been warning of looming infertility from Covid-19 injections. On December 1, 2020, Yeadon and Dr. Wolfgang Wodarg of Germany filed a stay of action with the European Medicines Agency, alleging that the Pfizer-BioNTech injections could potentially result in miscarriages, birth defects and female infertility.[41] Specifically, they cautioned that the Covid injections could train a woman's immune cells to cross-react to and attack syncytin-1, a protein in placental tissue.

In light of these warnings, it is troubling that subsequent to the mass Covid-19 injection campaign, thousands of women have reported menstrual cycle disturbances and reproductive dysfunction, including thousands of "reproductive and breast disorders" in the UK (over twenty-two hundred reported by late April after receipt of the Pfizer or AstraZeneca injections)

Subsequent to the mass Covid-19 injection campaign, thousands of women have reported menstrual cycle disturbances and reproductive dysfunction.

and a wide range of reproductive complications in the U.S., including spontaneous abortions, premature labor, stillbirths, irregular menstrual bleeding, vaginal hemorrhaging, "artificial" menopause and more.[42] Men, too, have reported reproductive disorders following Covid vaccination.[42]

Even more shocking, there have been an unusual number of reports of these same reproductive abnormalities occurring in unvaccinated individuals who have been in close proximity to recently vaccinated persons. This begs the question: Are the "vaccinated" transmitting something toxic to the unvaccinated?[43] Pfizer's clinical trial protocol (pp. 67-68) describes situations in which vaccinated participants could adversely affect the health—including reproductive outcomes—of unvaccinated persons through exposure "by inhalation or skin contact" to the "study intervention" (the Covid injection).[44]

A 2021 study by another group of Chinese researchers retrospectively analyzed sex hormones and menstruation in women of childbearing age diagnosed with Covid-19.[45] The investigators found that 28 percent of women who acquired Covid-19 naturally had a change in their menstrual cycle (such as prolonged menstruation), and 25 percent had a change in their menstrual cycle volume. Because Covid-19 vaccination forces the body to mount a similar immune response, it would not be surprising to find a comparable correlation between injection and menstrual disturbances. However, the vaccine makers collected no data about female participants' menstrual cycles during the 2020 clinical trials.[46]

According to Sayer Ji, founder of GreenMedInfo, "horizontal information transfer" within biological systems may offer a plausible explanation for possible effects of vaccinated individuals on the health of the unvaccinated. Horizontal information transfer is mediated by particles that facilitate intercellular com-

ADVERSE EVENTS FROM COVID INJECTIONS: THE TALLY AS OF MAY 2021

Over the five-month period since the emergency use authorization of Covid injections (December 14, 2020 – May 14, 2021), almost two hundred twenty-eight thousand Covid-vaccine-related adverse events (227,805) were reported to the Vaccine Adverse Event Reporting System (VAERS) jointly operated by the CDC and FDA.[86] In the first five days, the Pfizer injection alone produced over five thousand "health impact events"—the equivalent of a one-in-forty-three injury rate.[87]

A CDC webpage titled "Selected adverse events reported after COVID-19 vaccination" indicated that as of May 18, reported adverse events included over forty-six hundred deaths (4,647),[88] exceeding the total number of post-vaccination deaths reported to VAERS over the past twenty-two years.[89] About one-third of deaths occurred within forty-eight hours of vaccination.[90] No one knows what proportion of Covid-related adverse events VAERS (a passive reporting system) is capturing, but a 2010 government-funded study by Harvard estimated that fewer than 1 percent of all vaccine injuries are ever reported.[91]

Many of the adverse events have been severe, in numerous instances leaving recipients unable to perform "normal daily activities," unable to work, or requiring medical attention.[87] Severe outcomes have included allergic and anaphylactic reactions; skin reactions; neurological reactions; cognitive, psychiatric and behavioral changes; eye, ear, nose and throat problems; problems affecting the respiratory, cardiovascular, gastrointestinal, musculoskeletal, renal, urological, lymphatic, gynecological, hematological, and endocrine systems; and infections, including frequent reports of herpes zoster reactivation.[92,93] Unfortunately, widespread censorship is helping to ensure that many members of the public remain oblivious to these injuries. On May 3, 2021, twelve state attorneys general even went so far as to demand that Big Tech platforms eliminate all reports from people injured by vaccines.[94]

According to Dr. Sherri Tenpenny, there are an astounding twenty different mechanisms whereby Covid-19 injections can cause illness or death.[95] These can be broken down into four broad categories: (1) acute reactions such as cardiac arrest, or anaphylaxis caused by previous exposure and sensitization to the PEG component of the LNPs; (2) illness or damage resulting from immune system suppression; (3) illness or damage caused by spike proteins; and (4) illness or damage caused by anti-spike-protein antibodies.

Not surprisingly, conscientious doctors are signing open letters conveying serious concerns that approval of Covid-19 injections was premature and reckless, and that administration of the injections constitutes "human experimentation"—a violation of the Nuremburg Code of medical ethics when the experimentation is not voluntary.[96] For these doctors, the Hippocratic oath they took promising to "first, do no harm" is sacred. According to the 1947 Nuremburg Code, a participant must be fully informed of both the risks and the benefits in order to be able to give full legal consent. If the medical experiment causes harm, disability or death, it must be suspended.[97] Neither of these has happened.

munication called extracellular vesicles and even smaller particles called microvesicles. Ji speculates that microvesicles could theoretically "transmit mRNA from a recently vaccinated individual to those within close proximity, and therefore could, in fact, 'shed' mRNA and related biomolecules induced from the mRNA vaccination process to non-vaccinated individuals, causing symptoms similar to those experienced by the vaccinated."[47] Perhaps this is why Pfizer's study protocols warned pregnant women about exposure to injected male partners via inhalation or skin contact.[44]

NANOTECH AND TRANSHUMANISM

In April 2020, the Rockefeller Foundation released a report titled *National COVID-19 Testing Action Plan: Pragmatic steps to reopen our workplaces and our communities*.[48] In the plan, updated in July 2020, the Foundation presented its goals for "a national system to track Covid-19 status," including integration and expansion of "Federal, state, and private data platforms"—in essence, a permanent surveillance system similar to efforts already well underway in China.[49] A decade earlier, the Rockefeller Foundation published another report, *Scenarios for the Future of Technology and International Development*, that laid out plans for "coordinated worldwide strategies" and "authoritarian control and oversight" in the face of hypothetical challenges such as pandemics.[50] Not unlike the Gates Foundation-driven October 2019 simulation called Event 201, the Rockefeller report eerily foreshadowed many features of the current "pandemic," including universal quarantines, masking and more.

In June 2020, World Economic Forum head Klaus Schwab proclaimed the need for a global "reset" to "restore order in a world steeped in panic, conflict and economic turmoil."[51] Other world leaders—including Prince Charles and Canadian Prime Minister Justin Trudeau—as well as major media outlets and the world's central bankers have also endorsed the notion of a reset.[52] In a recent article, Dr. Joseph Mercola opined on the real meaning of these pronouncements and the reports produced by the Rockefeller Foundation. Mercola wrote, "The plan is to use bioterrorism to take control of the world's resources, wealth and people. It's to use coordinated pandemic response as a justification for wealth redistribution and the resetting of the global financial system." The architects of this proposed "reset" envision round-the-clock surveillance, tracking of physical location and biological data, digital IDs integrated with health data, banking "reform" and, ultimately, a social credit system.[53]

Integral to Schwab's vision of a global reset is "a fusion of our physical, digital and biological identity"—in other words, transhumanism.[54] Adherents of the transhumanist movement, such as SpaceX, Tesla and Neuralink founder Elon Musk and Google's Ray Kurzweil, theorize that the human race can—and should—evolve beyond current physical and mental limitations, especially by means of science and technology. Transhumanist goals are well illustrated on the website of the 2045 "strategic social initiative" called the Avatar Project (2045.com), which features discussion of "neo-humanity," a "new evolutionary strategy" and "cybernetic immortality," among other topics.

Nanotechnology is one of the primary tools enabling the rollout of the global control grid envisioned by central bankers, technocrats and transhumanists, and the science of "brain augmentation devices" is already well advanced.[55] Kurzweil has stated, "In the future, there will be no distinction between human and machine, or between physical and virtual reality."[56] Earlier this year, Musk announced a successful trial run of Neuralink's brain-computer interface in a monkey, which allowed the brain-chipped animal to play a video game with its mind.[57] (Musk has declined Covid-19 injections for himself and his children.)

According to Tenpenny, Kurzweil has predicted technological advances by 2030 that would allow injectable nanosized robots ("nanobots") into the bloodstream, where they would cross the BBB and enter the brain.[58] While this may sound like science fiction, microrobots and nanobots already exist. In August 2020, Cornell researchers announced their ability to "build [an] army of 1 million microrobots that can fit inside a hypodermic needle"; according to a summary of this research, the microrobots were "designed to operate in all manner of environments such as extreme acidity and temperatures" and to "investigate the human body *from the inside*" [emphasis in original].[59]

Nanobots can be produced using many organic or inorganic materials, including lipids, metals, minerals and synthetic polymers. Unlike programmed computers, they are created and formed to carry out specific functions such as sensing, information processing and communication.[60] The ability of nanobots to form arrays or other structures is called "self-assembling."[61]

The intention to use nanobots for the purposes of "targeted" drug delivery and "precision medicine" is already well out in the open,[62] but internal medicine specialist Dr. Carrie Madej is on a mission to sound the alarm about the ominous but less obvious merger of nanotechnology and transhumanism.[63] According to Dr. Madej, the technology may already exist to record and alter thoughts, emotions and memories via injection.

Nanobots can encapsulate DNA and RNA and deliver nucleic acids and other ingredients into the cells. They can be activated externally from light or other energetic sources like electromagnetic radiation.[64] Currently, technolo-

Technology may already exist to record and alter thoughts, emotions and memories via injection.

gies exist that allow nanobots to swim, attach, drill into cells and deliver a payload.[64] (Sound familiar?)

In one of her videos, Madej explains that human DNA is very similar to computer code, meaning that a slight change in our genome could have significant repercussions.[65] "How much of a change to our code (or our software program) would it take to make us not human?" she asks. When pondering this question, she also reminds her audience that while we cannot patent anything from nature, we can patent something that has been modified or engineered. For example, the chemical/biotech company Monsanto can patent its genetically engineered seeds. In Madej's view, the mRNA-based design of the Covid-19 injections, in essence, turns us into genetically modified organisms. Could humans become patentable (and thus "owned") if our genomes are modified?

Madej warns that exploitation of artificial intelligence (AI) via injected implants could bring about a system where global elites implement rewards and punishments based on each individual's behavior.[65] To be clear, the implants themselves would not be capable of AI because they are too small, but electromagnetic wireless communication systems could enable a "read/write" function to and from a "cloud" that has a network of computers running AI. As Dr. Dr. Tenpenny has cautioned, "if our brains can tap UP into the cloud, it only makes sense [that] what's in the cloud could be pushed DOWN into our brain."[58] Is it a coincidence that Moderna compares its mRNA technology platform to a computer "operating system" and calls its mRNA products the "software of life"?[66]

DARPA'S NANOTECH RESEARCH

Approximately five years ago, the Defense Advanced Research Projects Agency (DARPA), the once-secretive agency responsible for the Internet, GPS and stealth aircraft, announced that it would develop a "next-level" brain-computer interface program called Neural Engineering System Design (NESD),[67] part of a wider Brain Initiative announced by the White House in 2013.[68] According to Tenpenny, NESD is designed to "turn brain activity into a binary code, allowing humans to engage with machines wirelessly, by simply thinking."[58] Another DARPA program, called Next-Generation Nonsurgical Neurotechnology, proposes to develop bidirectional brain-machine interfaces to read and write directly onto the brain.[69] Madej's interpretation: "You become a character in a computer program that you do not control."

DARPA admits on its website that it is

DEPOPULATION AGENDA?

At the outset of the "pandemic," former Pfizer lead scientist Dr. Michael Yeadon said, "I'm well aware of the global crimes against humanity being perpetrated against a large proportion of the world's population."[98] Going even further, Yeadon stated, "Your government is lying to you in a way that could lead to your death," adding that "It's my considered view that it is entirely possible that this will be used for massive-scale depopulation."

Yeadon is not alone in expressing his distrust of the architects behind the Covid-19 injection campaign. He is joined by the likes of Drs. Sherri Tenpenny, Joseph Mercola, Carrie Madej, Christiane Northrup, Lee Merritt, Larry Palevsky and many other prominent doctors and scientists who have been repeatedly warning that the Covid injections are a bioweapon intended to reduce population.[43]

Although many of us have a hard time believing that those in charge could be so evil, one need only look back in history to find examples of forced sterilization and depopulation. Up until 1976, for example, the U.S. government practiced forced sterilization on Native American women.[99] Consider, too, the link between the lead developer of the Oxford/AstraZeneca injection, Professor Adrian Hill, and the eugenics movement. In 2008, Hill gave a lecture at the Galton Institute (formerly known as the U.K. Eugenics Society) in honor of its one-hundred-year anniversary.[100] One might also recall that entities that actively promoted eugenics in North America and Nazi Germany included the Rockefeller Foundation, the Wellcome Trust and the Human Sterilization League for Human Betterment (now called Engender Health), each of which have played "leading roles" in recent years at the World Health Organization.[101]

Finally, it is worth remembering that Bill Gates, who has perhaps the most egregious conflicts of interest regarding Covid-19 injections, gave a TED Talk in 2010 in which he boasted that vaccines could help cut the global population by 10 to 15 percent.[102] Gates also bragged in front of a live audience about how he injects genetically modified organisms into children.[103] Ironically, Gates is behind the coming Covid-19 Commission Planning Group charged with "investigating" the origins of SARS-CoV-2.[53]

working closely with the Department of Defense and the Department of Health and Human Services, in addition to industry partners (such as vaccine manufacturers), to provide technical and scientific solutions to address the Covid-19 "pandemic," but its focus on the new technologies that have been rolled out during Covid began years previously. In fact, DARPA began investing in nucleic acid (RNA and DNA) injections at least a decade ago, including providing funding for Moderna and CureVac.[70] A current DARPA program—Nucleic acids On-demand Worldwide (NOW)—offers a manufacturing platform for "near immediate doses of vaccine," enabling the rapid production, formulation and packaging of "hundreds of doses of nucleic acid therapeutics in days—rather than months or years."[71]

In 2016, DARPA awarded the company Profusa seven and a half million dollars to begin working on a tiny nanotechnology biosensor that can be embedded under the skin to detect disease, a technological development already billed as "the future of pandemic detection."[72,73] The stated purpose of the nanotech sensors is to track chemical reactions in the body to reveal viral infections before a person becomes symptomatic; if the sensor signals that the individual is "sick," a self-administered blood draw then gives a diagnosis within three to five minutes. The sensor would allow individuals' physiological data to be shared with health care providers via smartphone connectivity.[74]

The Profusa biosensor is bioengineered using "smart" hydrogel nanotechnology. Madej warns that this hydrogel nanotechnology, once implanted, could have the capability to grow and spread in the body through a self-replicating process—with considerable uncertainty about how this would affect our DNA.[65] In a May 25 "Covid Town Hall" organized by Children's Health Defense, Madej asserted that the hydrogel technology is a feature of the LNPs in the Pfizer and Moderna Covid-19 injections.[75]

Nanotechnology's applications do not end with its uses in Covid-19 (or other) injections but extend to the development of devices and platforms to administer the injections.[76] The "microneedle" prototype, for example, is a collection of dozens of microscopic polymer needles lined up on a small patch that is placed on the skin like a Band-Aid. The patches encapsulate the "vaccine" within the dissolvable microneedles, obviating the need for vials of vaccine that must be drawn up by needle-and-syringe for injection.[77]

Using the microneedle platform, the Massachusetts Institute of Technology (MIT) has invented a specialized dye, delivered along with the vaccine, that would enable "on-patient" storage of one's vaccination history. As *MIT News* reported in late 2019, the dye, "which consists of nanocrystals called quantum dots, can remain for at least five years under the skin, where it emits near-infrared light that can be detected by a specially equipped smartphone."[78] The Bill & Melinda Gates Foundation funded the "quantum-dot tattoo" technology, and also provided significant funding (in conjunction with the National Institutes of Health) for the development of the Moderna Covid injection.[79]

Manufacturers and officials claim that Covid-19 injections do not currently contain tracking capabilities, but back in 2016, the World Economic Forum's Klaus Schwab was already forecasting the need for implantable microchips within a decade to serve as a global health pass.[80] Clearly, we are not far off from a future characterized by quantum dot tattoos and hydrogel biosensors—technologies that enable the collection, storage, tracking and transmission of personal information going far beyond vaccination status. As countries (and some U.S. states) begin to require "vaccine passports" for entry to everyday businesses—using apps like IBM's Digital Health Pass[81] and CLEAR's Health Pass[82] that link personalized biometric identification via smartphones—it is evident that we are rapidly heading toward a two-tiered society.

Each of these increasingly center-stage nanotechnologies begs the question: Are we willing to accept twenty-four-hour monitoring in exchange for "safety"? Shouldn't we be concerned about being hooked up to the "cloud," perhaps permanently? In fact, the possibility of misuse of in-body nanotechnology by totalitarian governments has not been lost on those who dare to do a little homework. As technology critic Adam Keiper presciently wrote in *The New Atlantis* nearly two decades ago, "Aside from nanotech's potential as a weapon of mass destruction, it could also make possible totally

THE "COVID MAGNET CHALLENGE"

The most recent—and bizarre—phenomenon to surface in connection with the Covid injections are reports from people who have received the injections stating that they are able to adhere a magnet to their injection site. With numerous videos of what people are calling the "COVID magnet challenge" going viral on social media, many people are asking whether metallic nanoparticles in the vaccines could be responsible.[104] Meanwhile, an individual who received the AstraZeneca injection posted a report on social media that he now "connects" to Bluetooth devices.[105] The fact that there are numerous published studies describing the use of "superparamagnetic nanoparticles"[106] for vaccine delivery suggests that these troubling anecdotes may be worthy of greater attention.

novel forms of violence and oppression. Nanotechnology could theoretically be used to make mind-control systems, invisible and mobile eavesdropping devices, or unimaginably horrific tools of torture."[83]

"LIFE-SAVING" AT WHAT COST?

Many current and future applications of nanotechnology are touted for their life-saving potential, but one must consider the irony of a "life-saving" technology that is also deadly. To date, the nanotech-dependent mRNA injections are the most lethal of any "vaccines" ever administered.[84] In the first quarter of 2021, there was a 6,000 percent increase in reported deaths by injection compared to the same period the previous year.[85] With all of the injuries and deaths caused by previous vaccines and now Covid injections, it is little wonder that manufacturers have long insisted on exemption from legal liability.

For more than a year now, we have endured repeated deception on all manner of topics, including PCR testing, masks, lockdowns, social distancing, asymptomatic carriers, immunity, infection and fatality rates—and now variants. For this reason alone, we cannot trust the "experts." We also cannot allow the bad actors who are authorizing, administering or coercing people into taking experimental Covid-19 injections to determine our health outcomes. Nor can we sit back and silently watch as the media deliberately misstate the science to either pacify or terrify the public.

Around the world, governments and private businesses are pushing for the mandatory Covid-19 injections, which represent the gateway into a system of centralized surveillance and control—a system whose engineers care little for bodily integrity or economic freedom. What we are witnessing are crimes against humanity. Some go so far as to say we are in the midst of a spiritual war and that Covid-19 "vaccination" is the biblically foretold Mark of the Beast. It is imperative that we take control of our own health—blind acceptance and obedience will be the death of us, or worse.

As non-consensual medical experimentation is ever more widely imposed, our children also receive nanoparticle contamination in every childhood vaccine. If we ignore the detrimental effects of nanoparticle contamination in human vaccines and the LNPs in mRNA injections, we will surely be guilty of failing to safeguard our children. Fear of a virus that may or may not exist, with a global survival rate of 99.8 percent, is not an excuse for standing by as deaths and harms continue to accumulate, particularly when all available evidence and science indicate that Covid-19 injections are unnecessary, ineffective and unsafe.

Kendall Nelson is a documentary filmmaker actively engaged in directing, producing and distributing media that matter. With over twenty years of television and film experience, Nelson's lifelong commitment is to bring about awareness through her work, including advocating health freedom, simple living and real food. She is an Idaho chapter board member of the International Women's Forum.

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SERIAL FELONS

Before deciding to receive a Covid-19 injection (or any other vaccine), one might consider that the four companies that make all of the vaccines mandated for America's children are convicted serial felons, including Pfizer, which made the biggest criminal payout in history.[107] Johnson & Johnson is currently part of a fifty-billion-dollar lawsuit over allegations they downplayed the risk of opioid addiction to boost sales of the powerful painkillers.[108] As Robert F. Kennedy, Jr. has repeatedly pointed out, "Together, these companies have paid nearly thirty-five billion dollars in criminal penalties and damages since 2009 for defrauding regulators, falsifying science, lying to doctors and for killing hundreds of thousands of Americans with their products they knew were lethal."[109]

A massive marketing campaign with a seemingly endless amount of celebrity endorsements appears to have placed many members of the public under a form of "hypnosis," which allows them to overlook pharma's criminal track record and embrace the idea that the only way to end the "pandemic" is to accept one of the experimental injections. Considering that two of the four manufacturers of Covid-19 injections mentioned in this article had never previously produced a vaccine, one might even go so far as to say that the hypnosis is really a form of psychosis.

The use of propaganda to mask manmade injuries and deaths is not new, of course. Pharmaceutical companies and other industries have been poisoning us for decades with medicines and vaccines as well as fluoride in our water, glyphosate in our food and mercury in dentistry.

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IN MEMORIAM

Bonnie G. Miesel of Morley, Michigan, passed away in her home March 28, 2021 from non-Hodgkin's lymphoma. Bonnie was a Weston A. Price Foundation chapter leader and active in her community educating people about vaccine choice, nutrition and holistic living. She was a true servant and mentored many people throughout her life, helping to foster a love of learning and compassion for the world around her. Bonnie will be deeply missed.

She graduated from Goshen College and earned her master's degree in Latin American studies from Indiana University in 1968. Bonnie worked as a high school Spanish teacher and continued on to homeschool her own children, her grandchildren and many others. She was a lifelong learner and loved caring for her land, her animals and the people around her. Bonnie was a part of Vriesland Church of God 7th Day congregation since 1983.

Bonnie is survived by John Miesel, her loving husband of fifty-one years, five children and many grandchildren. Share a memory, picture or condolence for the family by clicking the guestbook at daggettgilbertfuneralhome.com.

Farm and Ranch

AMERICANIZING GLOBAL AGRICULTURE: NORMAN BORLAUG AND THE GREEN REVOLUTION

By Anneliese Abbott

One of the most controversial events in twentieth-century agricultural history was something called the Green Revolution—the dissemination of American industrial agricultural techniques and high-yielding crop varieties around the world.

It was the Green Revolution, its proponents argue, that enabled global agriculture to keep up with an expanding world population during the second half of the twentieth century. Their argument is that without it, millions of people would have starved to death, just like Paul Ehrlich predicted in his 1968 book *The Population Bomb*.[1]

Others consider the Green Revolution one of the worst tragedies in agricultural history, as unsustainable American farming methods replaced traditional agricultural practices founded on centuries of experience and wisdom. The Green Revolution forced many small farmers to leave their land and migrate to cities, often with little betterment in their living standards.

Both sides would probably agree that the Green Revolution "Americanized" global agriculture; they simply disagree on whether that was a good or bad thing.

So, what exactly was the Green Revolution, and why does it evoke such emotional responses?

NORMAN BORLAUG

Being a college student during the Great Depression was rough. For a forestry student named Norman Borlaug (1914–2009) at the University of Minnesota, it meant that he had to work several hours serving in a coffee shop just to get a piece of toast and a cup of coffee for breakfast. All around him, Borlaug saw people who were angry because they were poor and starving.

Two events that occurred during Borlaug's college days would profoundly impact his life. One day, he witnessed a strike and riot outside a factory, which he associated with the dehumanizing effects of hunger in the desperate workers.

He experienced hunger more personally when his wrestling coach told him to lose weight and he went several days without eating. In a sudden, uncontrollable fit of rage, he attacked one of his teammates. "You see, it wasn't me at all," he said later. "It was primitive, rudimentary. I can't explain how hungry I was. I was starving, and I found out that a hungry man is worse than a hungry beast." The memory of that horrible moment would haunt him for the rest of his life.

While he was working on his forestry degree, Borlaug decided to attend a lecture on wheat stem rust by Dr. Elvin Charles Stakman titled "The Shifty Little Enemies that Destroy Our Cereal Crops." Stakman was one of the most respected and influential plant pathologists in the country. He led the movement to eradicate barberry bushes because they served as an alternate host in the wheat stem rust life cycle.

This accused pathogen, *Puccinia graminis*, could reproduce only asexually on wheat plants; it needed barberry to reproduce sexually. By eliminating barberry, plant pathologists prevented the rust from forming new strains, giving them time to breed wheat plants that were resistant to existing strains of the disease.

Borlaug intended to work as a forester when he graduated, but there were no jobs available. Instead, he decided to get a master's degree in plant pathology when Stakman offered him an assistantship counting rust spores in his lab. He started working toward a PhD but ended his education early to take a job for the DuPont chemical company during World War II, where he tested materials for the war effort.

The whole course of Borlaug's life changed when a group of scientists from the Rockefeller Foundation offered him a position in their Mexican Agricultural Project (MAP). They were working with the Mexican government to breed

The whole course of Borlaug's life changed when a group of scientists from the Rockefeller Foundation offered him a position in their Mexican Agricultural Project.

In Borlaug's mind, if he could replace the "antiquated agriculture" with modern production methods like those used in the United States, poverty would automatically go away.

better wheat varieties to help Mexico increase its wheat production. After some consideration, Borlaug accepted this position, and in September 1944, he left his pregnant wife and daughter in Delaware and headed to Mexico.

DWARF WHEAT

When Borlaug arrived in Chapingo, Mexico, he was shocked by the extreme poverty of the Mexican peasants and the infertile soil—a completely different world from the rich Iowa farmland where he had grown up. "I don't know what we can do to help these people, but we've got to do something," he wrote in a letter to his wife.

Borlaug quickly diagnosed the causes of this abject rural poverty—backward agriculture, superstition and overpopulation. In his mind, if he could replace the "antiquated agriculture" with modern production methods like those used in the United States, poverty would automatically go away.

At first, the Mexican peasants were hostile to Borlaug's efforts to improve their agricultural practices. As evidence of their "resistance and superstition," Borlaug told the story of how one farmer allowed him to use part of his land for growing wheat. When Borlaug brought over a steel plow to work the soil, the farmer tried to stop him, claiming that the steel would take all the "warmth" out of the soil and make it infertile. Borlaug scoffed at his ignorance and kept plowing, but the farmer turned some cattle onto the field later so that the animals could put "heat" back into his land.

If Borlaug had been up on the current debate about moldboard plowing in the United States—which became quite heated after Edward Faulkner published *Plowman's Folly*[2] in 1943—he might not have dismissed the farmer's concerns so lightly. After all, evidence was accumulating that excessive plowing destroyed organic matter; perhaps Borlaug should have tried to figure out what the farmer meant by "warmth" (which could have meant organic matter) instead of just blowing him off as an ignorant peasant.

Historians have shown that the reasons Mexico's peasant farmers were in such dire straits in the 1940s were much more complicated than just "antiquated" farming methods. Mexican agriculture had struggled since the Spanish conquest, which historian John Perkins called "an unmitigated environmental disaster for the Indian civilization of Mexico."[3]

In his 1997 book *Geopolitics and the Green Revolution: Wheat, Genes, and the Cold War*,[3] Perkins argued that, while the Rockefeller Foundation's project ostensibly had humanitarian motives, the Mexican government hoped to use the Foundation's help to transition their country away from subsistence farming toward commercialized agriculture to produce commodity crops. Mexico wanted to copy the industrialized agricultural system that was gaining ground in the United States, while hopefully avoiding some of the negative consequences American farmers had experienced.

Whether or not his diagnosis of the causes of Mexican poverty was accurate, no one can deny that Borlaug worked wholeheartedly at his wheat breeding program. He threw all of his energy into his work, putting his goal of feeding Mexico's poor even above spending time with his wife or living in a comfortable apartment in Mexico City.

Borlaug worked from dawn to dusk seven days a week laboriously hand-pollinating millions of wheat plants, an extremely delicate and time-consuming task. Impatient with the fact that it took an entire year to grow out each generation of plants, Borlaug single-handedly established a second breeding program in the irrigated and more productive Yaqui Valley in Mexico's Sonora Province. Against the plant breeding wisdom of his day, Borlaug established a "shuttle" breeding program where he could breed two generations of wheat in a year, one in Chapingo and another in the Yaqui Valley.

By breeding alternate generations so far apart, Borlaug inadvertently selected for plants that were daylength-insensitive and thus could grow at any latitude. He bred plants to be resistant to stem rust and then selected for varieties that would give high yields when grown with irrigation and fertilizer.

As the yields of Borlaug's wheat varieties increased, however, he ran into a problem. When he put nitrogen fertilizer on his high-yielding varieties, they formed such large heads of grain

that the stalks were too weak to support them. These top-heavy stalks fell over, a phenomenon known as lodging, which made them difficult or impossible to harvest.

To Borlaug, it seemed like a waste of the plant's resources to put so much energy into a seemingly useless stalk, and so he worked to breed wheat varieties that partitioned more of their energy into the head and less into the stalk. Thanks to a few seeds of dwarf wheat from Japan, Borlaug was able to create dwarf wheat varieties successfully, with stalks only a foot or two high instead of the four or five feet on traditional varieties. The short, sturdy stalks of the dwarf wheats were able to support much larger heads of grain, thus dramatically increasing the yield of wheat per acre.

Borlaug's new dwarf wheats reached their full yield potential, however, only when grown with high amounts of fertilizers and reliable irrigation. Without these inputs, they were no improvement over traditional varieties and sometimes performed worse. Therefore, what Borlaug offered to the farmers of Mexico was more than just improved seeds: it was a "package" of seeds, fertilizer, irrigation and production practices that, when combined, could triple yields.

FIGHTING THE "POPULATION MONSTER"

The increases in yields when farmers adopted Borlaug's package of seeds and inputs were so dramatic that Mexican wheat production greatly increased. And Mexico was only the beginning. Since the new dwarf wheat varieties were daylight-insensitive, they could be grown in other parts of the world, too. Borlaug and his students—a group he named the "wheat apostles"—worked tirelessly to transfer the seed-fertilizer-irrigation package to other countries, most notably India and Pakistan.

"These and other developments in the field of agriculture contain the makings of a new revolution," William Gaud told the Society for International Development in 1968. "It is not a violent Red Revolution like that of the Soviets, nor is it a White Revolution like that of the Shah of Iran. I call it the Green Revolution." Gaud was the administrator of the U.S. Agency for International Development (USAID) at the time, having previously overseen the agency's operations in the Near East and South Asia.

The Green Revolution—the Americanization of global agriculture—was hailed as one of the most important events of the twentieth century. Borlaug and other proponents of the Green Revolution believed that if agriculture in "Third World" countries were modernized, it would improve the livelihoods of farmers, eliminate rural poverty and—most importantly—feed an expanding world population.

Borlaug was a neo-Malthusian—he believed that if population growth was not checked soon by birth control, population would soon outstrip food supply. "The greatest threat to man in this world, the biggest cause of hunger, and the most terrible menace to peace is this multiheaded population monster," he stated.

Despite all the honors he received for his work in helping to feed the world, Borlaug was pessimistic about the fate of humanity if population growth was not checked. "The green revolution has won a temporary success in man's war against hunger and deprivation; it has given man a breathing space," he said when he received the Nobel Peace Prize in 1970. "But the frightening power of human reproduction must also be curbed; otherwise the success of the green revolution will be ephemeral only."

For the rest of his life, Borlaug regarded plant breeding as a race against the clock to feed the world's expanding population. "Science has given mankind a brief breathing spell—a time to catch up to his problems, to lick the population explosion, to prepare for the future," he told Leonard Bickel, who wrote the first biography of Borlaug, *Facing Starvation: Norman Borlaug and the Fight Against Hunger*, in 1974.[4] "We can test later," Borlaug continued. "We need food production now, today."

Even in the beginning of the twenty-first century, Borlaug was still worried about population growth. In his 2009 biography *The Man Who Fed the World*, Leon Hesser quoted Borlaug as saying, "Without aggressive agricultural research programs, the world will soon be overwhelmed by the Population Monster."[5]

When the dire predictions that Paul Ehrlich made in his 1968 book *The Population Bomb* about an impending world famine in the 1970s

Borlaug's new dwarf wheats only reached their full yield potential when grown with high amounts of fertilizers and reliable irrigation. Without these inputs, they were no improvement over traditional varieties and sometimes performed worse.

failed to come true, Norman Borlaug and the Green Revolution were credited with preventing catastrophe. Even today, many people believe that Borlaug's breeding program saved the lives of millions of people, and that it would be impossible to feed the world's current population without the Green Revolution. The major biographies of Borlaug, including *Our Daily Bread: The Essential Norman Borlaug* by Noel Vietmeyer,[6] portray Borlaug as a hero who saved the world from starvation.

But not everyone agrees that the Green Revolution saved lives.

UNINTENDED CONSEQUENCES

Criticism of the Green Revolution started in the 1970s, right when it was supposedly gaining its greatest victories. Critics argued that the new high-yielding varieties benefited only large farmers and forced small farmers off their land. Even though the new varieties increased production of staple food grains, they did not ensure that the poor could afford to purchase them.

Some of the most vocal criticism of the Green Revolution has come from India, the country where it supposedly attained its greatest success. In his 1998 book *The Malthus Factor: Population, Poverty and Politics in Capitalist Development*, Eric Ross argued that the Green Revolution was "a new kind of assault on the Third World peasantry" and "was less about enhancing the food security of the poor in developing countries than about seeking the economic security of the United States."[7]

One of the best-known critics of the Green Revolution in India is Vandana Shiva. In her 1991 book *The Violence of the Green Revolution: Third World Agriculture, Ecology, and Politics*, Shiva wrote that the real legacy of the Green Revolution was "diseased soils, pest-infested crops, water-logged deserts, and indebted and discontented farmers."[8]

An overemphasis on wheat, Shiva argued, displaced pulses and oilseeds, thus decreasing the quality of the mainly vegetarian diet among the poor in India. The new varieties displaced traditional ones and diminished the genetic diversity of crop plants, making them more vulnerable to pests and diseases. Another negative impact was that a leafy vegetable called bathua, which grew in wheat fields, competed too much with the high-yielding wheat varieties and so was eradicated as a weed, depriving the poor of an excellent and freely available source of pre-vitamin A.

Though of course it is impossible to test the hypothesis, many believe that the expanding populations of the 1970s and beyond could have been fed without the Green Revolution. In a 2012 article in the *Journal of Development Studies*, James Sumberg and others noted that Borlaug and his colleagues, by "trashing the alternatives" to the input-intensive agriculture they promoted, "helped to limit and polarize these debates" about the possibility of feeding the world with organic or ecological farming methods.[9]

The reality was that by the 1980s, industrialized agriculture was barely working even in the United States. While American farmers achieved record-breaking crop yields each year, prices were too low to cover production costs. As an alternative to the high-input American agriculture that was promoted globally in the Green Revolution, a movement for low-input or sustainable agriculture began to gain ground both in the United States and abroad.

Instead of trying to transplant American methods and technologies directly into other countries, the goal of sustainable agriculture is to help each country or region develop an agricultural system compatible with its climate, economy and culture. While sustainable agriculture is not a panacea for the world's social problems, it does have the potential to be more environmentally and economically sustainable in the long term than the one-size-fits-all Green Revolution model.

(This article first appeared in *Acres USA*.)

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Legislative Updates

POLICY UPDATE SUMMER 2021

By Judith McGeary, Esq.

CONGRESS AND STATE LEGISLATURES TAKE A HARD LOOK AT MEAT PROCESSING

One of the major roadblocks to the production and sale of high-quality, locally raised meats is the lack of small-scale processors in our country. Part of the blame lies with the federal regulations for "inspected" processors, which include not only having an inspector on-site throughout slaughter and processing, but also large amounts of complicated paperwork for the Hazard Analysis and Critical Control Point (HACCP) plans and associated testing. And part of the blame lies in the complex web of regulations and the lack of anti-trust enforcement that allowed a handful of large corporations to overwhelmingly dominate the market, driving small competitors out of business.

The combined effects have led to a situation where many farmers want to raise healthy, grass-fed animals and sell the meat to their local community, but they have no viable option for processing that animal. In many areas of the country, the nearest inspected slaughterhouse is several hours' drive away, a trip that must be made twice (once to take the animal in and again to pick up the meat) at great expense and stress on the animals. In other areas, the small slaughterhouses are booked a year, or even two years, ahead, making it extremely difficult for farmers to get an appointment when they need it.

Local food communities have been discussing this problem for many years, and a few bills have been filed in Congress to try to address aspects of the lack of accessible meat processors. But, frankly, none of the discussions or bills garnered much interest outside of the hard-core local food community.

And then came 2019. Wyoming led the way in the spring of 2019 with a herdshare bill, allowing farmers to use "custom-exempt slaughterhouses," which do not require an inspector on-site or HACCP plans to process their animals if the consumers pre-purchased an ownership interest in the herd. The bill was positioned as part of the general "food freedom" movement, with only minor discussions about the fundamental problems with our meat supply.

But just as the Wyoming bill was passing, Americans saw the grocery store shelves go empty as the Covid-19 shutdowns led to disruptions in our fragile, consolidated, "just-in-time" agriculture and food system. All of a sudden, the issue of meat processing became front-page news. The PRIME Act, which had languished for years, garnered attention and doubled the number of Congressional sponsors in a matter of months. (The PRIME Act would allow farmers to sell meat processed in a custom-exempt slaughterhouse to consumers, retailers and restaurants in-state. Previous issues of *Wise Traditions* contain extensive articles about the bill.) Other bills were filed, and numerous bipartisan letters were sent to the USDA and DOJ demanding investigations and action into the consolidated livestock and meatpacking industry.

Although people's memories fade all too quickly, there continues to be significant interest in the issue of meat processing in 2021. Several states filed bills similar to Wyoming's herdshare law this year, and activists in Nebraska and Colorado were successful in passing LB 324 and SB 21-079, respectively. Bills in Texas and Oregon, however, failed to make progress due to opposition from powerful industry groups.

Congress is also getting into the action. In February, Representatives Pingree (D-ME) and Fortenberry (R-NE) refiled their "Strengthening Local Processing Act." Importantly, the bill (HR 1258) tries to reduce the regulatory barriers for small-scale processors by directing USDA to publish model HACCP plans and to provide a free, searchable database of research

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that slaughterhouses can use to develop their own plans. HR 1258 also provides for grants to small and very small establishments, whether USDA-inspected, state-inspected, or custom-exempt facilities to expand their capacity. It authorizes twenty million dollars in new grant programs to support training butchers. Last, it increases the federal share of costs for state inspection and for the Cooperative Interstate Shipment program, to encourage more states to establish state inspection programs and to expand the options for selling meat interstate. And this time, unlike Pingree and Fortenberry's previous effort, a companion bill in the Senate was immediately filed by eight Senators, equally divided between Democrats and Republicans.

HR 1258 is a good bill that would help local meat producers, but it doesn't address the fundamental problem that the USDA inspection requirements, which are imposed on state inspection programs as well, are fundamentally scale-prejudicial. The PRIME Act takes a different, and vital, approach, by creating the flexibility for states to break free from the USDA requirements for inspected facilities and allow the use of custom-exempt processors for in-state sales. Custom-exempt processors would still be subject to basic sanitary requirements from USDA, as well as whatever regulations the state chose to add, but they would not have to deal with the HACCP requirements and associated "performance testing" that is both expensive and biased in favor of mass production.

As I write, the PRIME Act is being reintroduced in both the House and the Senate. So watch for action alerts!

USDA TAKING A NEW TURN ON FOOD SUPPLY RESILIENCE?

For decades, the USDA's mantra has been "get big or get out." Even as it added some programs to promote local agriculture, such as the "know your farmer" initiative under Obama, the agency treated them as specialty programs, not to interfere with the real work carried out by the big agribusinesses. The accepted terminology was that the large-scale, conventional ag was "production agriculture"—with the implication that the rest of us weren't producing anything meaningful.

But on June 8th, the USDA announced that it would invest more than four billion dollars "to strengthen the food system, support food production, improved processing, investments in distribution and aggregation, and market opportunities."

The statement from Agriculture Secretary Vilsack was surprisingly candid about the problems with our system: "The COVID-19 pandemic… exposed a food system that was rigid, consolidated, and fragile. Meanwhile, those growing, processing and preparing our food are earning less each year in a system that rewards size over all else. The Build Back Better initiative will make meaningful investments to build a food system that is more resilient against shocks, delivers greater value to growers and workers, and offers consumers an affordable selection of healthy food produced and sourced locally and regionally by farmers and processors from diverse backgrounds." The agency's announcement included a statement that it will "seek to increase transparency and competition with attention to how certain types of conduct in the livestock markets and the meat processing sector have resulted in thinly traded markets and unfair treatment of some farmers, ranchers and small processors. Among other investments in the food system and food supply chain, Build Back Better will specifically address the shortage of small meat processing facilities across the country as well as the necessary local and regional food system infrastructure needed to support them."

This statement, directly connecting the fragility of the conventional food system with the need to support small-scale producers and processing, is a significant shift from the agency's rhetoric about production agriculture and the benefits of large, supposedly efficient, operations.

But it's all too easy for government spending to be wasted to no effect (or even to the opposite effect than announced). So now we need to work to ensure that these statements translate into real changes.

Earlier this year, the USDA began soliciting public comments on the issue of supply chains in agriculture and food. Based on a call I had with the senior staff on the project, it's clear that they are aware of, and seeking comments about, how to address the problems with the consolidated meatpacking industry, and the lack of small-scale processors. In that call, though, I pointed out the broader issue: it makes no sense to provide grant funds and specialty programs to promote diversification if the agency simultaneously adopts regulations and policies that unduly burden small-scale, diversified producers or closes off markets to them. For example, electronic animal ID—a program that WAPF and other groups have fought against for almost two decades—is extremely scale-prejudicial, and the benefits flow to the large, consolidated industries. The only way to change the "get big or get out" system over the long term is to require that all new agency regulations, policies and programs be reviewed to identify whether they are scale-prejudicial and therefore promote consolidation. Supporting resilient, diversified agricultural and food systems has to become part of the core mission, not window dressing.

LEGISLATIVE ORGANIZING LEADS TO A REGULATORY WIN FOR RAW MILK IN TEXAS

Last, some good news, which carries with it a lesson on the value of organizing even in the face of repeated losses. After eleven years of fighting over raw milk, the Texas Department of State Health Services (DSHS) published new regulations in May that removed one of the key restrictions that hobbled raw milk producers for so long.

The background situation is that Texas regulations allow dairies to get a Grade A license to sell raw milk directly to consumers, but then limits those sales to on-farm only. This limitation is not set in statute, but has been part of the agency's regulations since the 1980s.

The current saga began in 2009, when DSHS proposed to make it even harder for consumers to get raw milk. The agency proposed language that would have explicitly barred any sort of drive-sharing or group arrangements, so that each and every individual consumer would have to drive to the farm every single week. The proposal would have also required farmers to provide lists of their customers to the agency! Raw milk advocates fought back, and the agency's policy board put a halt to the proposed changes. But when we pressed to change the pre-existing regulatory limit on raw milk sales, they declined… so we turned to the legislature instead.

A bill to allow farmers to deliver raw milk and to sell at farmers' markets gained a lot of support very quickly, but was repeatedly blocked by opposition from the large dairy industry combined with the Texas Medical Association. The bill even managed to pass both the House and the Senate, with very strong votes—but not in the same session. After five attempts to pass the bill (the Texas Legislature only meets every other year, so this effort spanned a full decade), we were still determined to keep fighting but, candidly, were growing rather tired.

Then, in 2020, DSHS released draft changes to the raw milk regulations. That first draft was extremely bad—bringing back the earlier proposal to require customer lists, adding random new problematic requirements (such as a ban on freezing raw milk) and not providing any real reform on the issues we had spent a decade fighting over.

But that decade of organizing for legislative reform made a difference. There is a basic reality in negotiations—you need to be able to give the other side something they want in order to get something you want. Although our bill had failed to pass, the fights over it had taken up significant amounts of the agency's time and, even more importantly, its political goodwill with legislators. Despite the past failures, we had made sufficient progress toward passing the bill such that it was realistic to believe that we would succeed given more time. Finally, although we have been at odds with the agency in those legislative fights, we had still developed a relationship of respect, by avoiding political rhetoric and negotiating in good faith based on actual data. Combined, this made it worthwhile to the agency to develop a negotiated solution.

The final new regulations were published in May of this year and make several important changes from the current regulations:

- Legalizes delivery of raw milk anywhere in the state that the consumers and farmers wish to arrange. Sales at farmers' markets are not allowed, but a farmers' market booth can serve as a delivery point for pre-purchased raw milk.
- Empowers farmers to take their own samples to any approved lab, so they can ensure proper handling and quick results. The lack of this option in the past caused several farmers to have their licenses suspended.
- Recognizes the legality of animal shares. Until now, cow/goat/herdshares operated in a gray area of Texas law. Advocates contended that they were legal under normal principles of contract law, while the agency contended that they were illegal sales. So herdshare owners operated under a cloud of fear of government action. Now, as long as the herdshare operates with a bill of sale and divides milk proportionally (which a true herdshare should do), the agency's new rules recognize that it is not a "sale" and is excluded from the regulations.
- Expands the category of raw milk products that can be sold by Grade A licensed producers to include cream, sour cream, yogurt, buttermilk, whey, eggnog and kefir.

These new regulations, while not everything we wanted, are a huge step forward.

Our current food system, with its extreme consolidation of market and political power and vast array of unhealthy foods, didn't occur overnight. It will take many years of focused, strategic work to truly change it. It's vital to keep our focus on building power in the movement, whatever the result of a specific bill or initiative. Persistence pays off!

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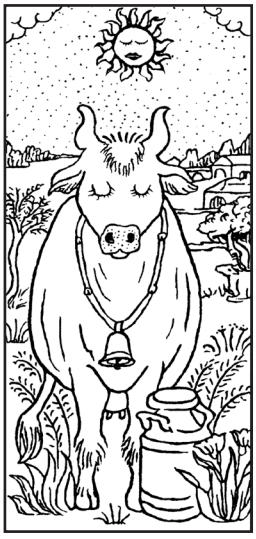
A Campaign for Real Milk

OBSERVATIONS ON THE COLLECTION OF FRESH UNPROCESSED MILK SAMPLES FROM STATES REGULATING DAIRIES: THERE ARE TWO KINDS OF MILK

By Ted Beals, MS, MD



Public health officials, the federal government and the dairy industry have long claimed that unless milk is pasteurized it should not be consumed or sold to the public. One of their arguments is that raw milk is "inherently dangerous." They also claim that raw milk has been a significant source of consumers' foodborne illness. Publications have stated that there have been incidents of outbreaks of foodborne illness in which raw milk was thought to be the source of the illness. These reports of outbreaks attributed to raw milk continue to be used as one of the strongest arguments for convincing legislatures to pass laws requiring milk pasteurization. The documented health benefits from raw milk do not overcome the perceived health risk in public health officials' policies and communications, and they persist in insisting that milk must be pasteurized to be safe for human consumption. This article offers a counter-argument to the notion that unpasteurized milk is "inherently dangerous" by making a clear distinction between "pre-pasteurized milk" and milk that is intended to be consumed fresh and unprocessed. This distinction may be helpful to dairy farmers and consumers of fresh unprocessed whole milk as more states move toward allowing sales of this type of milk.

FOODBORNE ILLNESS

The harmful bacteria that are currently thought to cause outbreaks attributed to raw milk are *Campylobacteria jejuni*, a small group of *Escherichia coli* that produce the shiga toxin, *Listeria monocytogenes* and salmonella. According to my data documentation, since 1999, the number of outbreaks associated with fresh unprocessed milk reported each year in the USA is, in fact, declining. This decline has occurred despite the well-recognized fact that the number of small dairies that are providing fresh unprocessed milk to families is rapidly increasing, and the number of people who are consuming fresh unprocessed milk has also been steadily increasing. Today, over eleven million people in the USA regularly drink this nutritious food. The argument that raw milk is "inherently dangerous" is based on the observation that manure, which contains many types of bacteria, is everywhere in the dairy environment, and that several well-documented studies have shown that the four bacteria of public health concern are frequently cultured in raw milk.

DATA COLLECTION FROM CONSUMERS AND FARMERS

In my personal contacts with dairy farmers

OUTBREAKS

When two or more people become ill from the same food source, it is legally classified as an "outbreak" and must be investigated by the local public health authority. Based on the assumption that if people become ill from food it is due to pathogens or some other contamination, federal regulations require that any medical laboratory that detects evidence of pathogens believed to cause human illness must send that information to local public health officials and the CDC. Currently, the four bacteria considered of public health concern when found in milk—*Campylobacteria jejuni*, a small group of *Escherichia coli* that produce the shiga toxin, *Listeria monocytogenes* and salmonella—are included in the pathogens that must be reported to health officials. If local investigation appears to show more than one person with the clinical finding of foodborne illness, health officials must then determine whether the illnesses are connected by type of food consumed and timing of exposure. It is important to point out that the milk is not the source of these illnesses. Rather, milk is the vehicle that transmitted pathogens from some other source into a person's digestive system and thus spread the illness. It is also important to understand that the investigation of such incidents is not scientifically confirmed, only that the local health officials believe that the incidents *might* be connected. (See westonaprice.org/cdc-cherry-picks-data-to-make-case-against-raw-milk-2/.)

In my personal contacts with dairy farmers and families consuming fresh unprocessed milk over more than twenty years, *none* had episodes of foodborne illnesses in those drinking the milk.

and families consuming fresh unprocessed milk over more than twenty years, *none* had episodes of foodborne illnesses in those drinking the milk. Since some of the dairy farmers that were providing unpasteurized milk to their consumers were testing their milk for bacteria to show that their milk was safe, I asked them for copies of their lab reports on their milk, and *none* of the reports they sent me showed positive laboratory results for these four harmful bacteria. This was in complete disagreement with the published studies that report finding bacterial contamination in more than 25 percent of the milk they sampled.

I became convinced that this inconsistency in lab results was due to differences in how the milk was produced. The scientific studies that showed a high presence of the four bacteria in samples had tested milk only from dairies that produce milk to be shipped to dairy industry plants, where it was pasteurized and homogenized, before sale to the public. In contrast, the dairy farmers I was receiving lab reports from were producing milk that they knew was going directly to families that came to their farm to get fresh unpasteurized milk. These consumers and farmers knew each other personally and were consuming that farm's milk because it was *not* pasteurized.

DIFFERENT MILKS

I concluded from this difference in lab results that the term "raw milk" is too general; in fact, we are talking about different milks: "fresh unprocessed milk" and "pre-pasteurized milk." I stopped referring to all milk coming from dairy farms as raw milk, and instead, I indicated the difference by calling milk from dairies that specifically produce milk that is not to be pasteurized "fresh unprocessed milk" and calling milk that is being shipped to industrial pasteurization plants "pre-pasteurized milk." The milk that researchers tested in their often-quoted studies was "raw milk" from dairy farms supplying the industry and intended to be pasteurized, that is, "pre-pasteurized milk."

Over the years, I have been asked to testify in court cases related to milk and dairy farms. Whenever I testified in court or gave public presentations in support of our position that unpasteurized milk is safe for human consumption, I made the point that there are two types of raw milk, and I suggested that the distinction between milk intended for consumption without pasteurization and milk intended for pasteurization might explain why the four harmful bacteria have been found in the samples that they tested for the research studies—that milk was being prepared for and shipped to their "consumers" (dairy processing plants) for pasteurization.

When I made this distinction, the supporters of pasteurization argued that my findings were worthless. They made four main scientific objections: 1) they criticized my findings as anecdotal; 2) they claimed that the samples from dairies whose milk was not intended for pasteurization were not collected properly; 3) they claimed that the lab reports I described had not been performed by reputable labs; 4) they suggested that the farmers who sent me their lab results were "cherry-picking" the reports that they sent to me, to assure me that their milk was free of harmful bacteria. Countering these criticisms appeared to require collecting data that would satisfy all the critics' criteria; however, such a study would be prohibitively expensive.

STATES ALREADY COLLECTING THE DATA NEEDED

As more states become convinced to allow people to obtain unpasteurized milk, their regulators have felt the need for specific legal requirements, to ensure that this milk was "safe." Some of those requirements called for regular, periodic testing. In some of these states, regulators specifically wanted to test the milk for the

THE ORIGIN OF THE PHRASE "FRESH UNPROCESSED MILK"

In 2007, a workgroup was formed in the state of Michigan, to give a clear direction to the director of the Michigan Department of Agriculture and Rural Development on how to provide fresh milk to consumers. At its first meeting, the workgroup of twelve stakeholders realized that they needed to specifically distinguish the milk they were discussing. The Michigan Pasteurized Milk Ordinance had already defined "raw milk" as milk that would become pasteurized, so the workgroup went step by step and coined the phrase "fresh unprocessed whole milk" as the term to be used in their discussions. The term was used in the full consensus report from this workgroup (springhouse-press.com/books.html) and has since been used by many throughout the world.

four harmful types of bacteria that had been associated with milk-borne illnesses. This meant that these states were gathering and recording solid data about the occurrence of pathogens in samples of fresh unprocessed milk made available to the public. Based on this testing, the state could shut down any dairy whose milk might make consumers sick.

The individual states were not actually doing research; they wanted testing to help them determine whether the availability of the fresh unprocessed milk from a particular dairy should be halted until the milk was deemed safe. Nevertheless, these data would satisfy all of the criticisms that were repeatedly brought against the data I had collected from dairies that sent me their testing reports, and they were publicly available.

COLLECTING THE STATES' LABORATORY TESTING

We made Freedom of Information Act (FOIA) requests to each of the seventeen states that were doing milk microbiology testing. We specifically asked for all bacterial testing data that they were getting from laboratories as part of their regulatory control of unpasteurized milk in their state. We received more than twenty thousand laboratory reporting sheets from the states and created a massive dataset. This included all testing by each state's own periodic milk sampling, using their own labs for testing unpasteurized milk. The compiled dataset included three hundred seventy-two dairies from across the nation. The data represented the states' documented collection and testing criteria. They also included results of a lot of laboratory testing, including some non-bacterial testing. The testing included milk from several types of milking herds, bulk tank samples and samples from other milk products produced by each specific dairy.

The purpose of this summary on this dataset is limited to comparing testing for the four harmful foodborne pathogens in fresh unprocessed whole cow's milk, so as to accurately parallel the published research studies that showed that up to 25 percent of raw milk is contaminated with these harmful pathogens.

INCLUSION AND EXCLUSION OF SOME LAB TEST RESULTS

Of the fourteen states returning FOIA responses, seven states required testing for the presence of the four bacteria (*Campylobacteria jejuni, E. coli O157:H7, Listeria monocytogenes* and salmonella). In addition, one state tested for these pathogens in periodic samples, although such testing was not in their formal regulations; results from this state are included in this summary. Thus, our dataset includes routine, periodic laboratory results only, for the years 2010 to 2014, the years we asked for in our FOIA requests. It is important to note that these data included samples collected during all seasons and in various parts of the country.

In the following summary, we report on only fresh, whole cow's milk, excluding data from goats and other animals and from other products made from milk. This subset includes milk from one hundred eighty-seven dairies across all regions of the county. There were 4,692 samples of milk tested, including 3,506 individual tests for the four pathogens. As we entered lab information for these samples into the dataset, it became obvious that some of the samples were processed for reasons other than as part of the state periodic scheduled sampling. We included only those samples that were part of periodic testing because this paralleled the sampling performed in the research studies cited by those advocating pasteurizing of all milk. The samples excluded from the states' results were:

- Duplicate: Samples retested to confirm initial lab results on the same sample.
- Follow-up: In those states requiring scheduled testing, there were procedures to resample a given dairy's milk to verify that a previously detected contamination had been

The purpose of this summary on this dataset is limited to comparing testing for the four harmful foodborne pathogens in fresh unprocessed whole cow's milk, so as to accurately parallel the published research studies that showed that up to 25 percent of raw milk is contaminated with these harmful pathogens.

INFORMATION RESOURCE FOR WAPF MEMBERS

Consult with Pete Kennedy on state laws, regulations and policies including food freedom legislation and issues regarding consumer access to raw milk, cottage foods and on-farm meat and poultry processing. (Pete cannot give individual legal advice or recommend support for or opposition to pending legislation.) Contact Pete at pete@realmilk.com.

corrected before consumers were allowed to drink that dairy's milk. These follow-up samples were excluded. If, however, the follow-up samples were taken on a regularly scheduled date, they were included.

- Investigation: Samples that were taken for testing performed as part of an investigation into an outbreak thought to have occurred at that dairy. These were excluded unless the sample was taken on the dairy's regularly scheduled testing date.
- Other: Results from testing on samples that did not fall into the exclusions above but were not taken on that dairy's regular, periodic testing schedule.

SUMMARY OF FINDINGS:
THE PREVALENCE OF PATHOGENS IN THE TWO MILKS

Of the one hundred eighty-seven cow dairies from eight states with regular, periodic testing of fresh, whole cow's milk, 94 percent had *no* samples that contained confirmed evidence of any of the four pathogens during the period tested. And less than 1 percent (0.75 percent) of the fresh unprocessed whole cow's milk samples contained one or more of these four pathogens. This compared to the 25 percent positive samples from the "raw milk" in the published results from milk going to the pasteurization plants, what I would call "pre-pasteurized milk." It is clear that these two types of milk are significantly different: "pre-pasteurized milk," destined for pasteurization in industrial milk plants, and fresh unprocessed milk, produced for families who want their milk unpasteurized. And thus, the claim that raw milk is inherently dangerous, based on testing only of milk that the dairy farmers knew will be pasteurized, is not borne out by the data on fresh unprocessed milk.

This review of the FOIA data from states that have enabled the provision of fresh unprocessed milk to families counters the argument that this type of milk is "inherently dangerous." This information supplements the accumulating data showing that more dairies are providing their fresh milk to their neighbors and an increasing number of families are drinking their milk unprocessed. At the same time, however, the number of outbreaks of foodborne illness attributed to this milk is declining.

In conclusion, this summary shows that as more people want to get their food from local farmers and want fresh, high-quality food, they are convincing elected officials that they should be allowed to determine if the food they eat is for their own health and taste, rather than for the business criteria dictated by the "food" industries. In subsequent summaries on these data, I will discuss the "value" of testing fresh unpasteurized milk for pathogens as well as additional information learned from the data on the correlation of different types of biological testing of fresh unprocessed milk.

Ted Beals is a pathologist, health educator and administrator. He is the retired National Director of Pathology & Laboratory Services, Department of Veterans Affairs. Since retirement he continues his years of biomedical research, now focusing on dairy safety and foodborne illnesses. He is an international consultant and educator on the medical aspects of agricultural product safety. Ted is a lifelong advocate for organic principles, sustainable and local agriculture and the nutritional and medical values of nutrient-dense foods. Ted is active in promoting the rights of farmers to provide and consumers to obtain milk and other locally produced fresh unprocessed foods. Ted lives with his wife Peggy on forty acres in rural Michigan.

RAW MILK UPDATES by Pete Kennedy, Esq.

FEDERAL – JUDGE UPHOLDS FDA RAW BUTTER BAN

On May 24, U.S. District Judge Rudolph Contreras rubber-stamped the U.S. Food and Drug Administration's (FDA's) denial of a citizen petition by the Farm-to-Consumer Legal Defense Fund (FTCLDF) and dairy farmer Mark McAfee (petitioners) to lift the interstate ban on raw butter, disposing of petitioners' appeal by granting FDA's motion for summary judgment. The upshot of the judge's decision is that FDA can ban any food in interstate commerce it wants under its power to regulate communicable disease; FDA did not provide any evidence in the case specifically establishing that commercially produced raw butter has ever been blamed for causing a foodborne illness outbreak in the U.S.

FDA had rejected the petition in February 2020, and FTCLDF and McAfee appealed to the U.S. District Court for the District of Columbia. Two issues were before Judge Contreras: whether FDA had the statutory authority to require pasteurization for butter and second, whether FDA acted arbitrarily when it banned a food in interstate commerce that had little or no record of making people sick.

Through a statute in the Federal Food, Drug and Cosmetic Act (FFDCA, 21 USC 341), Congress has given FDA the power to issue standard-of-identity regulations for most foods; standard-of-identity regulations are requirements prescribing what a food product must contain to be marketed under a certain name in interstate commerce. For instance, the standard of identity for milk in final package form requires that it be pasteurized or ultra-pasteurized and that it contain not less than 8.25 percent non-fat milk solids and not less than 3.25 percent milkfat. FDA's long-held position is that the pasteurization requirement can be part of the standard of identity. As Judge Contreras noted in his opinion, standards of identity "promote honesty and fair dealing in the interest of consumers."

However, there are several foods for which Congress prohibits issuing standard-of-identity regulations and one of those is butter. Congress has defined butter in the FFDCA, which serves as a standard of identity for the food; that definition does not require pasteurization for butter. When FDA violated the FFDCA by requiring that butter in interstate commerce be pasteurized. It claimed it had the power to do so under the authority given it to regulate communicable disease. The Public Health Service Act (PHSA) authorizes FDA "to make and enforce such regulations as in its judgment are necessary to prevent the introduction, transmission or spread of a communicable disease from foreign countries into the states or possessions or from one state or possession into any other state or possession" (42 USC 264). There is little or no evidence that Congress intended to give FDA the power to ban a food completely in interstate commerce under the PHSA, but that is what the judge found in his opinion.

In discussing the conflict between the FDA's pasteurization requirement under the PHSA and the FFDCA's statutory definition of butter, the judge stated, "the two statutes hardly touch on the same topic, much less conflict in such a way that one would have to supersede the other. While the PHSA is concerned with containing the spread of infectious diseases regardless of the means of transmission, standards of identity are meant to ensure that consumers know what foods they are buying. Rarely do two statutes with such different purposes conflict."

What the judge ignored in making this statement is the fact that both standard-of-identity regulations and Congress' definition of butter are concerned with public health; the 60-day aging requirement for raw cheese and the pasteurization requirement for milk and other dairy were implemented by FDA because of the agency's health concerns. When Congress passed the law creating the definition for butter, it didn't think a pasteurization requirement was necessary to protect the public health; it could have amended the definition at any time since to require pasteurization but has never done so.

The second issue before the court was the petitioners' claim that the pasteurization requirement for butter was "scientifically unsupported" and therefore "arbitrary, capricious, an abuse of discretion or otherwise not in accordance with law." On this issue, the judge's holding against McAfee and FTCLDF was even more troubling. The most important consideration in determining whether there is scientific support for banning a food in interstate commerce is looking at the food's history of making people ill. In the court record before Judge Contreras, there are only two foodborne illness outbreaks since 1908 where raw butter is definitively listed as the suspected cause of illness; in both outbreaks the butter was homemade. In its letter to McAfee and FTCLDF rejecting the petition, FDA included a table listing thirteen foodborne illness outbreaks attributed to butter from 1908 through 2003. There is a column in the chart indicating pasteurization status; only one of the outbreaks has "unpasteurized" in the column while the other twelve have either "not specified" or "not specified but commonly unpasteurized" in the table. The judge upheld the ban on raw butter in interstate commerce even though FDA failed to specifically link a single outbreak to commercially produced raw butter. There are a dozen states that allow the sale or distribution of raw butter, including California where Organic Pastures Dairy Company, a business McAfee founded, has sold well over two million pounds of raw butter over the past twenty years without incident.

The judge justified his decision by indicating FDA's findings that raw butter could contain pathogens that may cause illness were sufficient for him to uphold the ban, but shouldn't the number of illnesses a food has caused be a more important consideration? Moreover, any food that is improperly produced or handled is capable of making people sick. FDA shouldn't have the power to ban any food under its authority to regulate communicable disease; under the judge's ruling, there isn't a food the agency conceivably couldn't ban.

In his ruling, Judge Contreras stated that the court had to be "highly deferential" on FDA's decision to ban raw butter, citing a legal doctrine called Chevron Deference, a doctrine which basically leaves the courts powerless to overturn agency decisions. As long as Chevron Deference is in effect, lawyers for the agencies before the court might as well write the opinions themselves. If the courts ever want to reestablish their independence in reviewing agency decisions, this doctrine needs to go.

The best path to overturning the sham that is the raw butter ban is to legalize its sale or distribution one state at a time. Tennessee legalized the retail sale of raw butter in 2019; Utah did the same in 2020, and Montana has legalized the sale from producer direct to consumer in 2021. The petition has further established the excellent track record for food safety of raw butter; the move to legalize sales of the product in the state legislatures should continue.

FTCLDF and McAfee have not said whether they will be appealing the court decision.

UNITED STATES – PROGRESS ON RAW MILK LAWS

Since the onset of the Covid crisis and the decline in the reliability of the conventional food system, the regulatory climate for locally produced food has improved considerably in many states. State legislatures and regulatory agencies have moved to increase access to local food to meet growing consumer demand and to strengthen food security. Raw dairy products are no exception; so far in 2021, several states have moved to increase access to raw dairy.

MONTANA - On April 30, the Montana Local Food Choice Act became law, legalizing the unregulated sale of raw milk and all other raw dairy products by producers direct to consumers; there are limited testing requirements for producers but no inspection or licensing, and the producer must keep no more than "five lactating cows, ten lactating goats, or ten lactating sheep" for the production of milk. Previously, there was a limited exception to the prohibition on the distribution of raw milk under Montana securities law, an exception that few producers chose to take advantage of, opting to sell raw milk on the black market. With the passage of the new law, there will be substantially more dairies producing raw milk for direct consumption than raw milk for pasteurization; there are currently forty-five Grade A dairies left in the state.

TEXAS - On May 17, new regulations amending the state raw milk dairy code went into effect in Texas. The regulations are a big improvement over the prior law especially in the following respects:

- Now delivery from licensed raw milk producers (in Texas only licensed producers can legally sell raw milk) to consumers can take place anywhere in the state the two parties agree to. Prior law limited sales and delivery to on-farm, a major problem for producers far away from any population centers.
- The new rules expand the number of raw dairy products licensed producers can sell. Under the previous law, it was clear that producers could sell only raw milk; the regulations now state that they can also sell cream, sour cream, yogurt, buttermilk, whey, eggnog and kefir.
- The new regulations recognize the legality of herdshares, a contractual arrangement under which someone purchases an ownership interest in a dairy animal or herd to be entitled to a portion of the milk production. As long as there is a written bill of sale for the purchased interest and the consumer receives an amount of milk proportionate to that ownership interest, the arrangement is legal. Previously, the Texas Department of State Health Services had interpreted herdshare agreements to be the illegal sale of raw milk if the farmer operating the herdshare was unlicensed.

VERMONT - The Vermont legislature passed a bill going into effect July 1st that allows farm stands and community subscription agriculture programs (CSAs) to sell raw milk "produced on a farm other than the farm or farms where the farm stand or CSA is located." The bill increases potential markets for raw milk producers; under current law, only producers can sell to consumers.

WEST VIRGINIA - The West Virginia legislature legalized the sale of raw pet milk through the passage of a broader agriculture bill. The state law currently allows the distribution of raw milk through herdshare agreements if the farmer registers with the West Virginia Department of Agriculture, but few farms have registered so far, partly due to the high cost of the herd testing requirements. The new law opens up new markets for producers.

Demand for raw dairy products has increased over the past year; the trend toward a more favorable overall regulatory climate for raw milk producers should continue.

Healthy Baby Gallery

Kiva's life began in utero receiving a steady diet of raw dairy, organ meats, mackerel and bone broth from mom. She was born at home after a simple and textbook seven-hour labor. Since birth, she has been the sweetest, happiest baby. Every stranger who walks by her in the community stops to smile and remark at how happy she is. Her favorite first foods were liver, egg yolk and sauerkraut; she recently celebrated her first birthday with a raw cream and egg yolk custard. Our little WAPF baby was the best gift of 2020! Here she is eating dirt and looking for ripe strawberries in the garden.

Our daughter Talula, pictured here at nearly one year old, is healthy and strong. Talula loves all kinds of pâté, whole milk yogurt, cod livers and their oil, and of course she still gets plenty of breastmilk. She often receives compliments for looking like an "old-fashioned baby." We take that as a huge compliment and a testament to her diet. Thank you, WAPF, for sharing the traditional wisdom that is allowing us to raise such a happy, healthy girl.

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HUNTSVILLE, ALABAMA CHAPTER

The recently formed Huntsville, Alabama chapter takes off at its first on-site event at a local farmer's market! Chapter leaders Curtis and Paula Taft spent the afternoon meeting current WAPF members and talking to many other people who had an interest in WAPF. It was a successful outreach effort to share information and plant the seeds for the new chapter. Paula (pictured) is very descriptively teaching one of the Wise Traditions principles to an interested consumer.

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SAN FRANCISCO PENINSULA CHAPTERS

Elissa Hirsch and Shelley Lane (San Mateo County chapter leaders) and Isabel Bauer (host of monthly WAPF gatherings) picked up almost five hundred pounds of raw spring butter and organic cheese in Sebastopol (a two-and-a-half-hour drive) to redistribute to the San Francisco Peninsula WAPF community. Sushama Gokhale (Sonoma County chapter leader) organized the Butter Buy extravaganza; the total order was 6,774 pounds! It was a gorgeous day and a fun rendezvous with friends. Pictured holding five-pound blocks of cheese are Myra Nissen (Contra Costa Tri-Valley chapter leader), Shelley, Cate Thomas (butter assistant to Sushama), Karen Hamilton Roth (Marin County chapter leader), Sushama, Elissa and Isabel.

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DENVER CHAPTER VISITS EBERT FAMILY FARM

The Denver WAPF Chapter spent a wonderful afternoon on the Ebert Family Farm. Julie and Kres Ebert have been dairy farmers for sixteen years, supplying chapter members with raw milk. It was so nice to take a break from city life and be up close and cozy to cows, pigs, the llama and each other. Co-chapter leader Cheryl Harris reports, "We are so grateful for the day and the farm goods they provide us."

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PEDIATRIC CLINIC WELCOMES WAPF PHILOSOPHY

St. Petersburg, Florida chapter leader Mandy Bloom provided WAPF materials and shared her book *Real Food Recovery* with doctors and patients at the opening of a new pediatric clinic, Kids Outside the Box, in St. Petersburg. Three-fourths of their staff left during the 2020 Covid event. They decided to stay open, hire those who weren't afraid and plow ahead. Their practice expanded in a great way.

Mandy shared how she wished her son had gotten measles instead of the MMR vaccine, which caused serious issues, and how she found WAPF, changed the family diet and found recovery—which she now extends to foster children. But many new patients, including lots of new mothers, attended and learned about WAPF. Says Mandy, "I'm so excited to connect with this practice!

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LOCAL CHAPTER BASIC REQUIREMENTS

1. Create a food resource list of organic or biodynamic produce, milk products from pasture-fed livestock (preferably raw), pasture-fed eggs and livestock and properly produced whole foods in your area.
2. Provide a contact phone number to be listed on the website and in our quarterly magazine.
3. Provide Weston A. Price Foundation materials to inquirers, and make available as appropriate in local health food stores, libraries and service organizations and to health care practitioners.
4. Provide a yearly report of your local chapter activities.
5. Be a member in good standing of the Weston A. Price Foundation.
6. Sign a contract on the use of the Weston A. Price Foundation name and trademark.

OPTIONAL ACTIVITIES

1. Maintain a list of local health care practitioners who support the Foundation's teachings regarding diet and health.
2. Represent the Foundation at local conferences and fairs.
3. Organize social gatherings, such as support groups and pot luck dinners, to present the Weston A. Price Foundation philosophy and materials.
4. Present seminars, workshops and/or cooking classes featuring speakers from the Weston A. Price Foundation, or local speakers who support the Foundation's goals and philosophy.
5. Represent the Weston A. Price Foundation philosophy and goals to local media, governments and lawmakers.
6. Lobby for the elimination of laws that restrict access to locally produced and processed food (such as pasteurization laws) or that limit health freedoms in any way.
7. Publish a simple newsletter containing information and announcements for local chapter members.
8. Work with schools to provide curriculum materials and training for classes in physical education, human development and home economics.
9. Help the Foundation find outlets for the sale of its quarterly magazine.

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CHAPTER RESOURCES

Resources for chapter leaders can be accessed at westonaprice.org/local-chapters/chapter-resources, including our trifold brochures in Word format, the chapter handbook, PowerPoint presentations, business cards and more.

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282 serve the District of Columbia and every state in the U.S. except
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BELGIUM
Ghent: Sofie De Clercq 32 496 93 39 89, info@sofiedeclercq.be, holisticnutrition.be

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Olds: Rick Kohut (403) 507-5890, rick@healthstreet.ca
Peace Country: Peter & Mary Lundgard (780) 338-2934 plundgard@telus.net & Levke Eggers (780) 568-3805, levke@telusplanet.net

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LOCAL CHAPTER CHAT GROUP

While Yahoo groups have been disbanded, our chapter leaders have a wonderful new secure platform to carry on our many beneficial discussions, developed by the husband of one of our leaders, Jay Hamilton-Roth. We encourage all of our chapter leaders, and co-leaders, to join if interested in learning and growing as chapters, and individuals as well. To join, please contact Maureen Diaz at: outreach@westonaprice.org

International Chapters

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SINGAPORE CHAPTER

Members of the Singapore chapter, led by chapter leader Alexander Mearns, got together for a potluck and nutritional talk highlighting the importance of getting quality, nutrient-dense foods into the diet. For those not familiar with Singapore, we are a small but very modern and international city, an island-nation about the size of New York in Southeast Asia (between Malaysia and Indonesia). The event included "Weston Pricers" not just from Singapore but also from the United Kingdom, U.S., France and Indonesia—a fun, international crowd.

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CO

Meadow Maid Foods, 100% grass-fed, grass-finished beef. On pasture year-round at the family ranch in WY. Production practices detailed on our website. Custom beef, Farmers markets, and food co-op in Fort Collins. meadowmaidfoods.com, (307) 534-2289.

Rafter W Ranch, Simla, CO. A family-owned ranch, practicing regenerative agriculture, bringing you nutrient-dense food. Our animals are **100% certified American Grass-fed**. Our beef is 30-day dry-aged. We also offer pasture-raised lamb and broiler chickens. Bones, offal (liver, tongue, oxtail, kidney, cheek, heart) and other choice cuts available. Bulk and piece orders. Pick-up locations along the Front Range and **NOW shipping** in CO. (719) 541-1002, rafterwranch.net

IN

Now accepting reservations for 2021 Dairy Goat Herd Shares. Raw Goat Milk Pet Treat available now. Herd raised on certified organic pasture and hay. Hamilton County, Cicero, Indiana. Amy Jo Farmer. (317) 250-0963. farmersgoldhoney@comcast.net.

MA

Health Hero Farm on the agricultural island of South Hero, VT, ships high-quality 100% grass-fed beef to the Boston area. Our farm is certified humane and our pastures are certified organic. See our video at https://HealthHeroFarm.com/video

Many Hands Organic Farm in Barre, MA. All products certified organic and free range. Lard, pork, chicken and turkey stocks, pork, chicken, turkey and 26 weeks of CSA. No till, nutrient dense. mhof.net; (978) 355-2853; farm@mhof.net.

MD

100% soy-free chicken, eggs, pork and beef. Chicken livers, chicken feet and heads. Bacon and sausage. Raw pet milk. Raw milk blue and cheddar cheese by cheesemaker Sally Fallon Morell. **Will ship** whole cheese wheels. Southern Maryland, within 1 hour of downtown Annapolis and Washington, DC. Saturday farm tours. Store open Thursday to Saturday 10-6 or by appointment. P. A. Bowen Farmstead, 15701 Doctor Bowen Road, Brandywine, MD. (301) 579-2727, pabowenfarmstead.com.

MN

Farm On Wheels offers animals raised green grass-fed & organic. USDA inspected. Nutrient-dense beef, lamb, chicken, eggs, turkey, goose, duck, and pork, no corn or soy or GMOs. Farmers Market year around in St. Paul, Prior Lake. Linda (507) 789-6679, farmonwheels.net, farm_on_wheels@live.com.

NY

Dutch Meadows brings you the finest in high-quality grass-fed meats and organic dairy products, raised in harmony with the land. Order online and choose from hundreds of farm products, **WE SHIP.** Convenient pick-up locations in NYC. (717) 442-9208 info@dutchmeadowsfarm.com – DutchMeadowsFarm.com.

Grass fed Farm Fresh food to help you achieve vibrant health by enjoying high quality, nutritious, 100% grass fed raw dairy from sheep and Jersey cows. 100% grass fed/finished beef and lamb, Soy Free pasture raised pork, turkey and chicken, and lots more. Order online and utilize our convenient home delivery or pick up locations. Shop farmmatch.com/pleasantpastures or call (717) 768-3437.

OH

COPIA FARM, Dan & Caitlin, Short drive from Columbus, Johnstown Ohio (614) 915-9269, CopiaOhio.com. Farm store open daily, 9 am-7 pm. Raw milk herdshares, grass-fed meats, pasture-raised eggs, organic produce, organic sourdough bread & more! Regenerative, GMO-free, organic, paleo.

Devon beef, 100% grass fed, no antibiotics, no growth hormones. Full cow, ½ cow or individual cuts from my ranch in St. Leon, Indiana. Pastured pork, 100% antibiotic free, fed minimum amount of organic corn, 100% outdoors on pasture and woods. All meat USDA inspected. Information on how we raise our beef and pork plus important health links at abundantgreenpastures.com or Mike at (812) 637-3090.

Sugartree Ridge Grassfed Herdshare/PMA, located 60 miles east of Cincinnati in Highland County. We deliver 100% grass-fed milk, optional A2-A2 milk and many other products to sixteen delivery sites in Cincinnati. Farm and contact address is: Scott Richardson, STRG Herdshare 6851 Fair Ridge Road, Hillsboro, OH 45133-9548.

OR

Grass-based biodynamic raw milk dairy offering Jersey Hi-creamline milk, cream, golden butter, cottage cheese and aged cheeses. Soy-free veal and pork seasonally. On farm sales and membership club. **Can ship.** Sherry and Walt (541) 267-0699.

Windy Acres is a raw milk dairy. It provides families with raw cheeses, Gouda, Jack, Jalapeno Jack, Tri Colored Peppercorn Jack, White Cheddar, Swiss (Jarisberg style), Feta, Camembert, etc. We make hand-pressed butter, cream, yogurt, kefir, lamb, pork and beef. Grass-fed, raised without GMO or soy. (541) 613-5239 Windyacres26@gmail.com.

PA

Dutch Meadows brings you the finest in high-quality grass-fed meats and organic dairy products, raised in harmony with the land. Order online and choose from hundreds of farm products, **WE SHIP.** Visit our farm store. 694 Country Lane Paradise, PA. (717) 442-9208 info@dutchmeadows farm.com – DutchMeadowsFarm.com.

GAP VIEW FARM MARKET Raw milk, raw milk cheese, cream butter, eggs, including duck eggs and fresh vegetables from our chemical free farm. Call (484) 667-1382 or visit our farm market in the heart of Lancaster County, PA at 5230 Newport Rd, Gap, PA 17527.

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Raw milk cheese from our grass-fed Jerseys, made on our family farm with Celtic sea salt. No grain feed. Also grass-fed beef and pastured chickens, turkeys and eggs. All soy-free, no hormones or synthetics. On-farm sales, **will ship cheese**. Wil-Ar Farm, Newville, PA (717) 776-6552.

SC

S C VEGETABLE FARM EQUIPMENT SELL-OUT. Sold as a package only. IH 531 plow, IH 574 Tractor, only 300 hrs., Pico 10/20 disk cultivator, Lely spreader, 6' scrape blade, 6'lift arm, older Cole planter/cultivator w/ seed plates, 5'Bushog, IH Farmall Super "A" tractor with front cultivator. $35,900. (864) 292-5001.

VA

Salatin family's Polyface Farm has salad bar beef, pigaerator pork, pastured

chickens, turkeys and eggs, and forage-based rabbits. Near Staunton. **Nationwide delivery available**. Call (540) 885-3590, polyfacefarms.com.

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VT
Health Hero Farm on the agricultural island of South Hero, VT, ships high-quality 100% grass-fed beef to the Boston area. Our farm is certified humane and our pastures are certified organic. See our video at https://HealthHeroFarm.com/video

WY
Meadow Maid Foods, 100% grass-fed, grass-finished beef. On pasture year-round at the family ranch in Goshen County. Production practices detailed on our website. Custom beef, Cheyenne farmers markets and local delivery. (307) 534-2289, meadowmaidfoods.com!!

Healthy Products

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Crafts & Clothing

Beautiful crafts by local artists. Keep your gift-giving dollars in the USA. Alpaca blankets, socks and yarn; hand painted decorations, paintings by award-winning artist David Zippi; handmade quilts. Exclusive source of Nourishing Traditions posters. Saturday farm tours. Store open Thurs-Sat 10-6 or by appointment. P. A. Bowen Farmstead, 15701 Doctor Bowen Road, Brandywine, MD. (301) 579-2727, pabowenfarmstead.com.

DVDs/On-Line Videos

DVD "Nourishing Our Children" recently launched a DVD that may be used for one's self-education or to present to an audience. You will learn how to nourish rather than merely feed your family. nourishingourchildren.org/DVD-Wise.html **Free shipping**!

View all UK & Irish WAPF conference videos, many European speakers never seen in the USA, in our large and growing video library that will host and fund future events. Subscribe for just £2 a month. (about $2.50). https://westonaprice.london.

Homes/Farms & Land Sale

BEAUTIFUL PREPPER RESOURCE RETREAT, upstate South Carolina 15 minutes west of Lake Keowee. Secluded 4,400sf. luxury energy efficient home: 4br, 6 full bath, walk in level has easy conversion to 2 separate apts. Designed for self sufficiency during adverse times. 50 acre historic farmstead includes 10 acres bottomland and pasture, 3 stall horse barn, 2 streams, spring fed stocked pond, $699,500. (864) 292-5001. website: SCCherokeePathRetreat.com.

Business and farm in Oregon looking for a buyer. The farm is a turn key operation. It has a 30 cow 30+ heifer herdshare dairy, with over 100 members. Includes cheese room operation, USDA-inspected raw dairy cheese room for extra revenue, underground fodder container and green room, smaller greenhouse, and orchard that haven't been completely developed for revenue. On one side of the parlor is for cows and one for sheep or goats. A large walk-in freezer and milk equipment for milking sheep and cows. Deliveries to Portland, Medford, Ashland, Dalles, Bend, Redmond, and on-farm sales. See pictures windyacresdairy.com. Call (541) 613-5239.

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Networking

I work as a private chef who cooks traditional foods recipes for people in their homes. I use high quality ingredients like pasture raised meats and cooking fats, raw milk, bone broths, and seasonal produce. I am interested in networking with other real foods private chefs so we can help support each other and share tips for how to run a private chef business. I am located in Canada; I look forward to chatting with you! Jana Kutarna Jkutarna@gmail.com.

Research

WITH THE AUSTRALIAN DAIRY INDUSTRY STRUGGLING, farmers walking off the land and suicides at dismal highs—it's time for urgent action. Our biggest project this year will road test the 2009 risk assessment by Food Standards Australia New Zealand (FSANZ). Please DONATE here ausrawmilk.org/donate.

Johanna Keefe, PhD, MSN, GAPS/P, has completed her doctoral research through the California Institute of Integral Studies (CIIS) revealing, through in-depth interviews, the lived experience of mothers as they described their lifestyle following a real food diet based on WAPF principles. Please consider sharing a part of your

own story with her by email or phone, to see if yours may contribute to one of her forthcoming projects: a photo-essay accompanying an uplifting mini-series or documentary with the working title, "Grass-FedBabies", to inform and inspire our next generation of parents. Johanna looks forward to hearing from you at johanna8@comcast.net or by phone/text at (978) 290-0266 or DM her on IG @grassfedbabies to set up a time to talk!

Services

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SOUTHERN MARYLAND – Farm stay at P A Bowen Farmstead. Living room with kitchenette, 1 bedroom, plus cots, to sleep 4, even 6 total. Barbeque, pool, private entrance. Tree house for children. Walks, farm activities. 1 hour from downtown Washington, DC and Annapolis. Listed at AirBNB or contact Lindsay at farmstay@pabowenfarmstead.com. 15701 Doctor Bowen Rd, Brandywine, MD.

Long-time WAPFer, honest, on disability, with severe mold, EMF sensitivities (wireless and dirty electricity) in need of safe housing in a location with low ambient RF and clean air. Prefer within 3 hours of DC, but not necessary. Contact lmschnoor@juno.com.

Crafts

> The results of man's trying to improve on Nature is deteriorating the human race, especially in America where people are accustomed to so-called luxuries, including fast, convenient and junk food.
>
> *Jethro Kloss*

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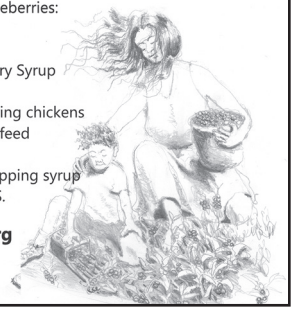

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"How is it that people on a ship off the coast totally isolated from the rest of the world, can have an outbreak of influenza on the ship? That's a little odd, isn't it? If it's all about transmission, where do the viruses come from in the beginning?"

DR. LELAND STILLMAN – WISE TRADITIONS PODCAST 302
westonaprice.org

Life in all its fullness is Mother Nature obeyed.

Weston A. Price, DDS

True health is the harmony of life within us, consisting of a mind full of true knowledge to live by, happiness of heart from living by this knowledge with integrity, and physical well-being also from living by this knowledge. Therefore, if we really want health, we must be willing to work for it the same as we do for wealth, education, or any other accomplishment in life.

Dr. Randolph Stone

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Information / Training

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Information / Training

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Information / Training

> The spirit cannot endure the body when overfed, but, if underfed, the body cannot endure the spirit.
>
> *St. Francis de Sales*

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Information / Training / Practitioners

Unless we put medical freedom into the Constitution, the time will come when medicine will organize into an undercover dictatorship to restrict the art of healing to one class of men and deny equal privileges to others; the Constitution of the Republic should make a special privilege for medical freedoms as well as religious freedom.

Benjamin Rush, MD, (1746-1813)
America's "Father of Medicine,"
Signer of the Declaration of Independence.

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"You teach, you teach, you teach!"
(Health professionals are encouraged to provide this brochure to their patients.)

Yes! I would like to provide my family and friends with the gift of membership in the Weston. A Price Foundation.
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Upcoming Events

2021 EVENTS

July 31 **Hannibal, MO:** Seminar on Healthy Traditional Diets with Sally Fallon Morell on Saturday in conjunction with https://www.homesteadinglifeconference.com. **Details:** westonaprice.org/events/.

Sept 11 **Lakeland, CO:** Seminar of Healthy Traditional Diets with Sally Fallon Morell at Sunrise Ranch and Retreat Center. **Details:** westonaprice.org/colorado.

Oct 2 **Swoope, VA:** A Healthy Future with Sally Fallon Morell, Joel Salatin and others. **Details:** westonaprice.org/events/.

Wise Traditions 2021

21st Annual Conference of the Weston A. Price Foundation
November 5-7, 2021
Allen, Texas (outside Dallas)

Robert F. Kennedy, Jr., Del Bigtree, Natasha Campbell-McBride, MD, Andrew Kaufman, MD, Larry Palevsky, MD, Stephanie Seneff, PhD, Sally Fallon Morell, Louisa Williams, ND, Gerald Pollack, PhD, Beverly Rubik, PhD, Griffin Cole, DDS, James DeMeo, PhD and many other fine speakers on diet and health!

For details, see page 10

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You teach, you teach, you teach!

Last words of Dr. Weston A. Price, January 23, 1948

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