THE WESTON A. PRICE FOUNDATION®
for WiseTraditions
IN FOOD, FARMING AND THE HEALING ARTS
Education • Research • Activism
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LACTO-FERMENTATION
BROTH IS BEAUTIFUL
A CAMPAIGN FOR REAL MILK
TRUTH IN LABELING
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NURTURING THERAPIES
COMMUNITY SUPPORTED AGRICULTURE

You teach, you teach, you teach!
Last words of Dr. Weston A. Price, June 23, 1948

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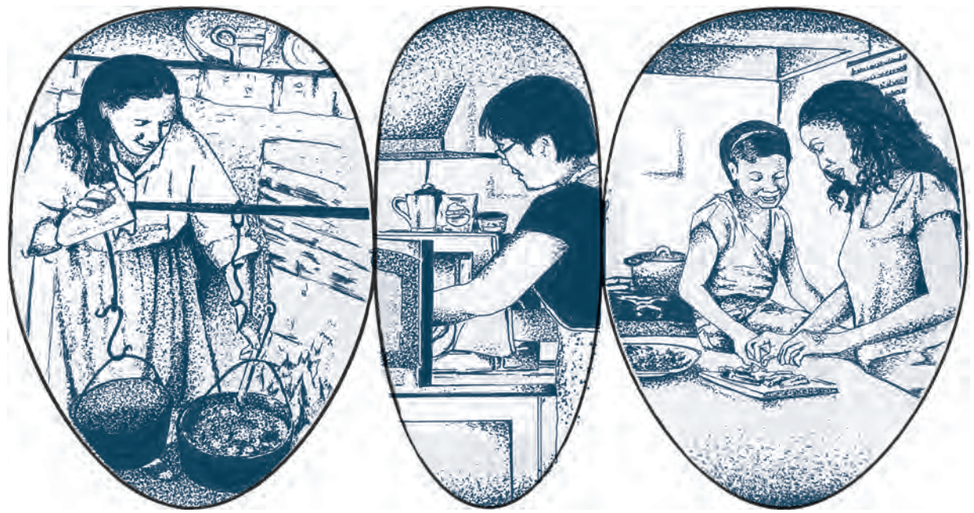
Wise Traditions
Winter 2013
Volume 14 Number 4

NUTRIENT-DENSE FOODS TRADITIONAL FATS LACTO-FERMENTATION BROTH IS BEAUTIFUL
$12 US

Wise Traditions
IN FOOD, FARMING AND THE HEALING ARTS

Volume 14 Number 4 Winter 2013



Beyond Cholesterol: Vitamin K_2 in Preventing Heart Disease
Grain Traditions from Russia Cancer to the Rescue
Lab Research: Fatty Acids in Grain-Fed & Grass-Fed Beef

A PUBLICATION OF
THE WESTON A. PRICE FOUNDATION®
Education Research Activism
www.westonaprice.org

TECHNOLOGY AS SERVANT SCIENCE AS COUNSELOR KNOWLEDGE AS GUIDE

COMMUNITY SUPPORTED AGRICULTURE
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WiseTraditions is mailed quarterly to members of the Weston A. Price Foundation

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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.

Upcoming Events

2014

Feb 1 **Eemnes, Netherlands:** Weston Price Day featuring Sally Fallon Morell, David Wetzel and Dutch farmers at the van der Valk Hotel, De Witte Bergen. **Contact:** Succesboeken.nl, (31) 30 2285600.

Feb 5-8 **State College, PA:** PASA Farming for the Future Conference. **Contact:** http://pasafarming.org/events/conference

Feb 7-8 **Sandown Park, Esher, London, UK:** Wise Traditions London featuring Sally Fallon Morell, Chris Masterjohn, PhD, Natasha Campbell-McBride, MD, Prof. Ton Baars, David Wetzel, Dr. Malcolm Kendrick, Dr. Graeme Munro-Hall, Ben Pratt, Jane Levi, Jane Mason and more to be confirmed, including practical workshops, exhibition and food. **Contact:** westonaprice.org/london.

Mar 8 **Carlsbad Beach, CA:** Standard Process seminar for South Coastal California featuring Sally Fallon Morell on "Nourishing Traditional Diets" and "The Oiling of America." Open to the public. **Contact:** (949) 433-7831

Mar or April **Houston, TX:** Spring Regional Conference. Details to be announced.

Sept **Boston, MA:** Fall Regional Conference. Details to be announced.

SAVE THE DATES!

WiseTraditions 2014

15th Annual Conference of the Weston A. Price Foundation

November 7-10, 2014

Indianapolis, Indiana

Recordings of Wise Traditions 2013: www.westonaprice.org

Wise Traditions

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A PUBLICATION OF

THE WESTON A. PRICE FOUNDATION®

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President's Message

The American Heart Association (AHA) and the American College of Cardiology (ACC) have released new cardiovascular disease prevention guidelines which would greatly expand the use of statins in healthy people. The guidelines recommend them for about 44 percent of men and 22 percent of *all* healthy women between the ages of forty and seventy-five. According to calculations, over thirteen million healthy people for whom statins were not recommended based on the 2001 guidelines now fall into the category of requiring statin "therapy."

Although billed as a non-profit organization, the AHA received over five hundred million dollars in donations from non-government and non-membership sources in 2012. Many well-known large drug companies, including those that make statins, donate in the million dollar range.

The new recommendations come in the teeth of new findings on statin side effects. For example, the Women's Health Initiative, a federal study of over one hundred sixty thousand healthy women, showed that a woman's risk of developing diabetes increased 48 percent compared to women who were not on a statin; if their weight was normal, statins increased their risk of diabetes 89 percent. Other well-documented side effects include muscle pain, weakness, cataracts, cognitive dysfunction, nerve damage, liver injury and kidney failure.

The new guidelines will aim at increased "compliance." Even at 100 percent compliance, the cost of saving one life from statin therapy is estimated at two hundred fifty thousand dollars per year; at current compliance, which ranges from 25-65 percent (depending on the study), that cost goes to one million dollars. (The industry admits that a major contributor to non-compliance is the glut of information on the Internet on the adverse effects of statins.)

In addition to serving as a mouthpiece for statins, the AHA also rakes in millions from food companies to gain the "heart check mark" recommendation from the AHA, renewable, at a price, every year. The foods that receive the mark have to be low in fat, especially saturated fat, and cholesterol, thus furthering the appalling dietary advice that is pulling Americans inexorably down into the abyss of chronic disease.

Even the most avid statin proponents admit that the drug does not prevent 60 to 80 percent of cardiac events. How can we stop this statin madness? Only by saying no ourselves and by bringing up a generation of children who understand the dangers of pharmaceutical drugs. Eventually those who choose the pharmaceutical model as a way of preventing disease will die out, leaving a wiser generation to embrace saner ways of eating and more holistic approaches to health.

Letters

HYPNOTIZED BY A CULT?

Thank you for your articles on GMO dangers (Fall 2013). I have been here on the farm for around forty years. I've seen all sorts of trends come and go, but when GMOs came to town, it was as though everyone was hypnotized by a cult.

The promises were higher yields, but when the yields were only equal to, or even less than what they were getting before, the farmers still held to it like a religion. I have never seen such self-deception.

Now there are superweeds, fursarium mold has gone pathogenic, and the pest insects come to my natural garden to eat. Fortunately, these visiting insects are mostly too sick to even move, let alone contaminate my plants with the GMO vectors.

This planet has gone to a very dark and smokey place in a handbasket.

Warren Bleuttner
Spencer, Iowa

PEOPLE'S MILK IN PAKISTAN

I was very interested in your article on the People's Milk (Fall 2013). Here in Pakistan, processed milk marketing companies have taken full advantage of the disturbed political situation by involving corrupt politicians as well. But a group of enlightened people are struggling hard against these companies, and the companies are aware of that subtle change.

About two months ago, a Nestlé senior employee approached me and offered me a huge amount of money to work for them as their nutritionist! Naturally I declined. Fortunately, we can still get wonderful raw milk products in Pakistan.

Dr. Shagufta Feroz, Chapter Leader
Lahore, Pakistan

WHEAT AND LEGUMES

Regarding all the discussion about the paleo diet, I finally read *The Perfect Health Diet* by Paul Jaminet (after following the blog over the years). The blog was a great experimental platform—I learned a lot from the different solutions people were pursuing towards better health. I particularly admired Jaminet's thoughtful, logic and science-based responses to various health issues. However, he lost me on the wheat.

The conclusions appear to be that wheat is bad for you. This is based on a correlation, not a thoughtful analysis of what the causative factors might be. His premise is, wheat and legumes are hard-to-digest foods if not properly prepared; people are not likely to prepare them properly; therefore people should refrain from eating them. What sort of logic is this? Are we using poor quality, badly prepared foods, poorly combined with complementary foods, to justify asking humans to eschew these foods in their entirety?

Over one billion people in India have thrived and bred prolifically on these same foods, especially so in the wheat and legume-growing regions, where people have lived long, healthy, productive and honorable lives for centuries (see www.globaldialogue-foundation.org/files/41.pdf) while living on a diet of grains, dairy, legumes, fruits and meats. Yes, perhaps these grains and legumes have lectins and phytates that drain your body's vitamins and minerals. You simply have to pay attention to the quality of such foods (actually any foods), in order to have them confer health benefits upon you. To say that because some wheat is genetically modified or that food prep is difficult, one must avoid all wheat is just silly.

This is no different from demonizing all milk because some milk (pasteurized milk) causes problems. Raw milk is a materially different food from pasteurized and homogenized milk. Ditto with grains and legumes. Grains and legumes are the staples of my diet. I use high quality ingredients and I prepare them traditionally. These result in no sickness, no bloating, no celiac disease, no digestive disorders; to the contrary, they bring about excellent bowel movement, good mental stability

Letters

(absence of anxiety, stress and angry behavior), good sleep patterns, good energy among my consuming family, one of whom is of European ancestry who did not grow up eating legumes and chapatis. He, in particular, has thrived on this food. We eat these foods with lots of raw dairy, yogurt, some meat, lots of ghee and local fruits and vegetables. We thus consume these foods in a very traditional manner.

Quality and processing techniques are incredibly important and just as incredibly overlooked are aspects of successful assimilation of foods into the body. I object to tarring a whole food group with the same brush as we do industrial foods. In my view, the health crisis in India today is generated in people who have drifted from traditional methods of cooking and eating. Influenced by heavy television marketing, they avoid traditional fats and tend to eat refined fats. Influenced by Western sound bytes, many women are embarking upon restricted calorie or worse, zero fat diets. They eat Cheerios and Corn Flakes instead of dosas and idlis, made of fermented lentils and rice for breakfast. They have learned to live in terror of cholesterol readings. Where 250 mg/dcl levels are routine for coconut-eating cultures, these are now considered markers of ill health. The local wheat is hybridized, sprayed with reckless amounts of pesticides, and harvested from nutrient stripped soils. Additionally, city folks live in a lot of industrial pollution, eat out a lot more (restaurant food is cooked in highly refined and hydrogenated fats) and eat more highly refined grains (in the form of cakes, pastries and biscuits).

The obesity I see in women today did not exist in my mum's generation. Women were plump and voluptuous, but never gargantuan. Every woman I know who is very, very overweight is on a calorically restricted, nutrient-poor diet.

In the North, the green revolution has decimated the Indo Gangetic delta that had been nurtured effectively for five thousand years. Some farming households actually use poisonous pesticide containers to store foods! The drift from traditional methods of cultivation and the intrusion of modern soil stripping techniques is appalling. The government sits mute, helpless and corrupt. Instead of investing in sound distribution systems, the focus has been on chemically driven yields. Thank heavens for people like Dr. Vandana Shiva.

I love Dr. Jaminet but I am perplexed by his conclusion and recommendations on wheat and legumes. I just don't agree with these.

Sushama Gokhale
Larkspur, California

ALWAYS A SMILE

I want to thank you for all your information on raising children. My wife and I have been using all the suggestions and recipes that you recommend. Our baby loves liver, raw cream and egg yolks. He thrived on the raw milk formula. We make all his foods and are happy to do so. We have not vaccinated him and we will not.

The baby sitter we have sees many babies and said that the other babies always cry, scream and cannot stay still. She is amazed because Keenai never cries, is always happy and always has a smile. I want to send you a picture so you can see his smile and round healthy face.

Shantih Coro
North Miami Beach, Florida

PUBLIC HEALTH RISK

If air pollution risk, chemical fire or environmental catastrophe occurs, first responders and workers are required to wear a self-contained breathing apparatus to protect their lungs. When the public sees respirators, we realize the public health risk is great.

BP's Gulf oil spill and 9-11 Ground-Zero showed a pattern of federal officials lying to first responders and workers and blocking the use of respirators. Other catastrophe clean-ups also failed to use proper safety equipment. Unacceptable

Letters

injuries and harm occurred in these cover-ups! Why has the federal government turned against good citizen-heroes?

BP claims that no health or safety concerns ever existed for workers or public exposures. Corexit9500 MSDS sheets showed high risk warnings. Anyone wanting a respirator was threatened with termination by Unified Command supervisors from BP and Transocean. BP cruelly treated first responders as disposable.

Dr. Michael Robichaux, also former Louisiana state senator, was shocked to find exposed patients experiencing symptom-clusters with memory loss, headaches, extreme fatigue, irritability, abdominal cramps, seizures and trance-like states, unlike symptoms treated from frequent oil spills.

BP should have predicted this. Similar severe respiratory and nervous system damage occurred during Corexit use for the Exxon Valdez cleanup. More details are in Government Accountability Project's "Deadly Dispersions in the Gulf."

Occupational health physician under US-DHSS Robert Bourgeois rejected Louisiana Shrimp Association president Clint Guidry's request for respirators. Why did a federal government doctor cause harm? Regulation enforcement should protect public and worker safety.

Will Senators Johnson or Baldwin call for a grand jury racketeering investigation into the corporate and anti-environmental crime wave, resulting in catastrophes made worse by federal negligence or criminal conspiracy?

Susan Michetti
Mt. Horeb, Wisconsin

DIETARY ADVICE

We are writing to thank you for the dietary advice for a path to healing other than the conventional tablet swallowing. It started with a visit to the butcher who gave me flack when I requested bones. I can laugh now about the butcher, but as you can imagine it was freaky asking for some whacky food such as bones to heal your body when "everyone knows" you must "eat lowfat and moderate your meat intake."

In the past I've never bought from a butcher. Silly me for trusting the supermarket to value my health! The first butcher I visited and asked for bones fumed and said, "What? You want bones? Do you want any meat on those bones? Do you see the sign outside? It says 'butcher.' We sell meat not bones!" In his fury he smashed some thin bones to a pulp, and I slipped out of the shop quickly and went home to produce my first batch of broth, which we had to filter through muslin as well as our teeth!!

My husband had a major back fusion at the end of February after I had had a basal cell carcinoma removed mid-February. What happened post operatively is interesting and I've attributed this to the influence of the GAPS and Weston A. Price Foundation's dietary advice. My husband and our middle daughter each lost about 14 kilograms from August to December 2012 after we changed our eating to incorporate some of the traditional methods of eating, including homemade yogurt, sauerkraut and broths, while cutting out carbohydrates initially to re-balance our gut flora.

Having read many articles relating to statins on the WAPF website, my husband decided he would wean himself off them. He'd been taking statins for about four or five years and not a scrap of dietary advice was given him. So he ate what he liked and took a tablet to sort out any problems internally. He gradually took less and less of the tablet over a period of a month and a half. He was still on a drug (can't remember which) to lower slightly raised blood pressure. After the back operation in February he was in the Intensive Therapy Unit and monitored hourly. They noticed that his blood pressure was too low, and the doctors stopped the blood pressure tablets. When he moved to the normal ward and stayed there for a further nine days his blood pressure was still monitored. This means we have a detailed account, which our doctors now have, of his reduced blood pressure readings. He is no longer on the tablets!

We are suggesting that the diet lowered his blood pressure. It is interesting that the doctors tend to smile when you tell them how you healed yourself! You can see them thinking, "Shame, she must be a nutter–yogurt, sauerkraut; yeah right!" But what gets people's attention is my husband's and our daughter's weight loss and her greatly reduced migraines. They do want to know what she ate to help lose weight, so that's a positive.

Also, the reason I started looking into WAPF's advice was because our middle daughter had polycystic ovarian syndrome (PCOS) which was confirmed with a scan. She returned earlier this year, at her request, for a follow-up scan, where they found that most of the cysts were no longer there. Again we have attributed this to the diet which was high

Letters

in bone broth and initially cut out all carbohydrates. We also increased our butter and meat intake as well as having homemade sauerkraut, yogurt and kefir. It has been hard to sustain with all the extra care my husband needed, but we seem to have reaped many benefits from the initial stringent diet and what we cut out.

Thanks for the ongoing advice and I know that the many people we talk to are accessing the WAPF site and learning from you good guys!!

Name Withheld
Hertfordshire, UK

HOMEMADE FORMULA

I can't thank you enough for Sarah Pope's videos on the homemade baby formula, posted at www.westonaprice.org. I first learned about WAPF when researching alternatives for conventional baby formula. I had breast cancer when I was twenty-three and because of a double mastectomy, will not be able to breastfeed. For years I have been researching formulas, and when I found your videos and the WAPF recipe for homemade baby formula, it was a tremendous answer to my prayers.

Kristy Hernandez
Miami, Florida

CAVITIES FROM
FERMENTED FOODS?

I am a dentist and would like to report my observations of patients following WAPF dietary principles. I've been an avid supporter of these principles for years but much to my dismay I'm seeing a significant increase in cavities in many patients that start following this type of diet. I also have not seen anyone reverse or heal medium-to-large cavities so far. It may be possible; I just haven't seen it yet.

I believe the reasons for the phenomenon are twofold. One is the inclusion of a lot of fermented foods and the other is the impression that followers get when they read about isolated primitive cultures that had excellent dental health but never received any professional dental care nor did they brush their teeth.

Fermented foods are acidic because of the formation of lactic acid. While these foods are great for digestion and intestinal health they are hard on the teeth. The acids pull minerals from the teeth making them weaker and more prone to decay. I've seen similar high decay rates in patients drinking kombucha tea all day long as I see in patients drinking Coca-Cola all day. To prevent this problem I recommend to patients that they only consume femented food and drink with meals to limit the time of exposure of the teeth to the acids. I also recommend that patients rinse their mouths after meals with an alkaline rinse such as baking soda to neutralize the acids. They are advised to spit the solution out after rinsing and not to swallow it so that necessary stomach acid is not neutralized.

As for primitive isolated cultures I think that readers get the impression that oral hygiene and professional dental care are not important or necessary if one eats a nutrient-dense diet. This may have been the case for those cultures because they probably never ate a morsel of highly processed junk food in their lifetime and neither did their parents or grandparents. So their teeth had a much stronger foundation that could withstand some acidic foods as well as lack of oral hygiene. But in our present culture this is just not the case for most. I do observe that most patients who have regular dental cleanings and brush and floss their teeth daily have many fewer dental problems even if their diet is not always ideal. I also find that cleaning between the teeth with soft picks (available at many pharmacies) to be very helpful as well.

I hope that my observations and suggestions help readers enjoy the health benefits of a WAPF type diet while avoiding the pitfalls.

Carol S. Berman, DDS
Norcross, Georgia

Thank you for your interesting letter. All traditional cultures consumed fermented foods so the problem may be that your patients with cavities are not getting enough vitamin K_2 in the diet or, as you say, they may have started out with teeth that are not very strong. Also, much commercial kombucha is very sweet; it should be long-brewed and sour and consumed in small quantities. We have not had any reports of folks on our diet getting cavities, just the opposite, they stop getting cavities. It would be interesting to do a full dietary survey of your patients who are getting caries to find out exactly what they are eating.

Letters

SENSITIVE TO MSG

I am very sensitive to glutamates so some of the WAPF foods have the potential to cause reactions in people like me. However I have slowly been able to add bone broth and sauerkraut to my diet. And now, I am very happy to report I am having no MSG reaction to the fermented cod liver oil! I take about one-fourth teaspoon with breakfast and one-half teaspoon with dinner or at bedtime.

I can report notably greater health—physical, emotional, cognitive—since I have been transitioning to a traditional diet. My diet was already free of processed foods and all chemicals, completely organic, mostly local, included small amounts of local meats and poultry, and small amounts of fish and raw cheese. Also, I did not eat any of the "bad fats," except I cooked with olive oil at high heat. I've removed grains for now as I've noticed fatigue and brain fog when I eat them, added in lacto-fermented veggies with meals, and now cod liver oil each day. I start the day with stock, protein and fat (instead of oatmeal), eat some liver pâté from local organic pasture-raised chickens throughout the week, eat lots more organic eggs, butter and raw milk, cream and raw cheese, and now I eat olive oil only raw. Of course, I still eat plenty of organic fruits and veggies. The cod liver oil seems to have provided an additional calming effect and a higher stress threshold. I haven't been this relaxed in years. I'm relieved about the cod liver oil as I have been concerned for twenty years about keeping my bones healthy but have never found a supplement I trusted.

Polly Pierce
South Burlington, Vermont

RAW MILK FOR
BLOOD PRESSURE

Here's a great story for raw milk drinkers. I went on a strictly raw milk diet sixteen days ago to treat my high blood pressure of 160/100. Within four days it dropped like a stone to 120/80, sometimes lower, sometimes a little bit higher, but it's never been back to 160/100.

I'm utterly elated; you can't imagine what a monkey off my back that has been after all this time. I had had a large blood clot in my left shoulder earlier this year that has confounded medics and me alike as to cause, given my general fitness. Actually chronic dehydration contributed as well as elevated blood pressure and some minor trauma to the shoulder through doing, ironically, Tibetan longevity exercises.

You want me as a poster boy for raw milk as a kick-arse hypertension cure: I'm yer man! I only had one side effect to the raw milk diet: it had a majorly constipating effect. But I used a heaping dessert spoon of my good coconut flour with every sixteen-ounce glass and that resolved the issue.

Ian Haldane
New Plymouth, New Zealand

EXHIBITORS AT *WISE TRADITIONS 2013*

Warren Hartnell and Nick Junemann with owners Carla and Randy Hartnell of Vital Choice Wild Seafood & Organics. WAPF is grateful for the great generosity of Vital Choice, which donated wild shrimp for both the Farm-to-Consumer Legal Defense Fund fundraising dinner and the WAPF awards banquet. And those shrimp were delicious!

Joshua Henson and Matt Coe of Fermenti Artisan, displaying delicious lacto-fermented foods.

Caustic Commentary

Sally Fallon Morell takes on the Diet Dictocrats

POSTOPERATIVE DELIRIUM

A frequent side effect of elective surgery is postoperative delirium, a serious mental state characterized by disorganized thinking and an altered level of consciousness. A recent study found that the use of statin drugs is associated with an increased risk of postoperative delirium among elderly patients undergoing elective surgery—not surprising given the fact that statins lower cholesterol levels, and cholesterol is essential for normal brain function (*CMAJ* 2008 Sep 23; 179(7):627). Unfortunately, many elderly patients are put on statins, even if their cholesterol levels are already low.

THE DEADLY FIVE-IN-ONE

The "pentavalent" vaccine combines immunological materials for five diseases in one injection: diphtheria, pertussis (whooping cough), tetanus, pneumonia-meningitis (Hib) and hepatitis B. While not licensed by the FDA it is approved by the World Health Organization (WHO) and the Global Alliance for Vaccines and Immunization (GAVI), who together with the Gates Foundation heavily promote its use in the developing world. Unfortunately, the five-in-one seems to be especially deadly. In an editorial published in the *Indian Journal of Medical Ethics* (*IJME*, Vol X, July-Sept 2013), Dr. Jacob Puliyel, head of pediatrics at St. Stephens Hospital in New Delhi, reports twelve deaths and nine other non-fatal serious adverse events following administration of the vaccine. According to local news reports, all the babies who died were in good health prior to vaccination and had serious trouble breathing before dying shortly afterwards. As Dr. Puliyel stated in his editorial asking India to protect the nation's children from this vaccine, "Trivializing all these deaths as coincidental deaths, or deaths due to SIDS, amounts to obscuring the real picture." He also crunched the numbers and found that giving Indian children this vaccine didn't even make any logical sense from a health care standpoint because, "It is apparent that to save 350 lives from Hib disease, 3,125 children will die from the adverse effects of the vaccine."

TYLENOL AND AUTISM

Babies and children often get Tylenol (acetaminophen) after receiving a vaccination, and today many pediatricians are recommending a dose of Tylenol just before the vaccine, and even on a daily basis up to five days before the vaccine, in order to counteract the frequent post-vaccination high fever reaction. In an October 2013 webinar (www.greatplainslaboratory.com/home/eng/Acetaminophen.asp) endocrine expert William Shaw, PhD, makes the case that it is this allegedly "safe" over-the-counter painkiller that triggers autism in susceptible children, not the vaccination itself. Acetaminophen depletes glutathione, the body's key cellular enzyme for antioxidant activity. Especially in children, a drop in glutathione may cause buildup of toxins and trigger brain changes. Dr. Shaw points out that in Cuba, the vaccination rate against measles is 99.7 percent, but the rate of autism there is about three hundred times lower than in the U.S. The reason may be that acetaminophen is not given to children after vaccinations in Cuba; in fact, acetaminophen is not approved for over-the-counter use in Cuba.

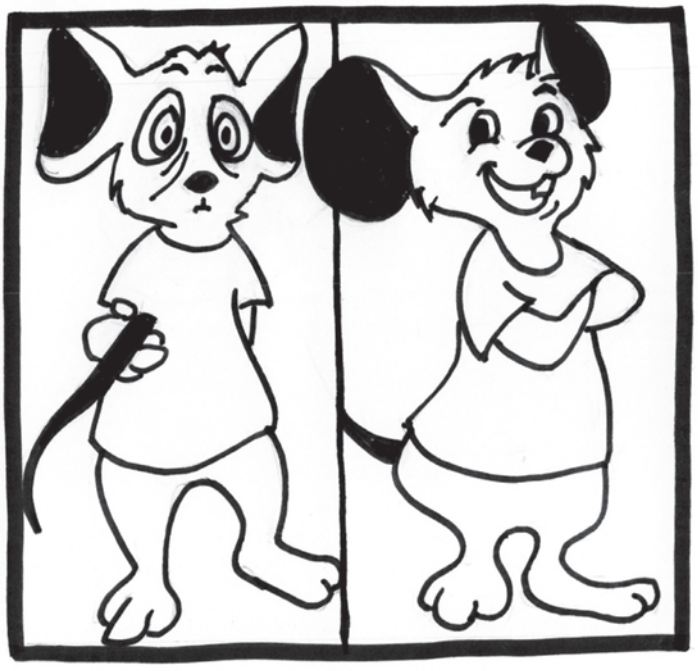
PASTEURIZED MILK AND ACNE

Milk maids were known for their beautiful skin, but many studies link consumption of modern dairy products with acne and other skin problems. When the link began to emerge between milk consumption and acne back in the 1960s, dermatologists often recommended that acne patients give up dairy foods. With the advent of medications to treat acne (usually synthetic vitamin A), such dietary advice became less common. Still, the evidence continued to pile up. For example a 2008 study found a strong correlation between acne and consumption of skim milk in teenage boys (*J Am Acad Dermatol*. 2008 May;58(5):787-93). A 2010 review article found a weak association of acne with dairy, especially skim milk, and a stronger association with consumption of refined sweeteners (*Journal of the American Academy of Dermatology* July 2010 63(1) 124-141). Holistic dermatologist Alan Dattner, MD, recommends all his acne patients limit dairy foods—conventional dairy foods, that is. But what if *raw* milk could actually help prevent acne and contribute to beautiful skin? Fables about beautiful milk maids suggest that this could be the case and modern science gives us the reasons why. Raw milk contributes to gut integrity and supports balanced gut flora, both prerequisites for healthy skin. And European studies indicate that raw milk is strongly protective against eczema in infants, so it is not such a stretch to the premise that raw milk protects against blemishes in teenagers.

Caustic Commentary

TOXINS TIED TO INCOME LEVEL

The bodies of the rich contain unique chemical pollutants, according to new research reported at qz.com. Using data from the U.S. National Health and Nutrition Examination Survey, researcher Jessica Tyrrell and colleagues from the University of Exeter found that most Americans, both rich and poor, are walking waste dumps for toxins like mercury, arsenic, lead, cadmium and bisphenol. The buildup of environmental toxins in the body afflicts rich and poor alike, but the type of toxin varies by wealth. America's rich are harboring chemicals associated with what are normally considered healthy lifestyles. People who can afford sushi and other sources of aquatic lean protein appear to be paying the price with a buildup of heavy metals in their bodies, said Tyrrell. The rich had higher levels of mercury, arsenic, caesium and thallium, all of which tend to accumulate in fish and shellfish. (Not mentioned: the rich may have higher exposure to mercury from vaccinations and dental fillings, and to arsenic through consumption of chicken.) The rich also had higher levels of benzophenone-3, an oxybenzone, the active ingredient in most sunscreens. By contrast, America's poor have toxins associated with exposure to plastics and cigarette smoke. Higher rates of cigarette smoking among those of lower means seem to be associated with higher levels of lead and cadmium. Poor people in America also had higher levels of bisphenol-A, used to line cans and other food containers, but is banned in the EU, Malaysia, South Africa, China and, in the U.S., in baby bottles. Previous research has established that well-off Americans are more likely to eat their fruits and vegetables and less likely to eat "energy-dense" fast food and snacks, but this work establishes that in some ways, in moving up the economic ladder Americans are simply trading one set of environmental toxins for another.



GUT BACTERIA AND THE BRAIN

The notion that our gut bacteria can affect brain function, even to the point of causing autism in cases of severe gut dysbiosis, attracted heaps of scorn when first proposed, but accumulating research continues to reveal the fascinating connection. In experiments with mice, researchers have found that changes in gut bacteria can cause changes in both brain chemistry and behavior. One experiment involved replacing the gut bacteria of anxious mice with bacteria from fearless mice. The mice became less anxious, more gregarious and vice versa—bold mice became timid when they got the microbes of anxious ones. Furthermore, aggressive mice calmed down when the scientists altered their microbes by changing their diet, feeding them probiotics or dosing them with antibiotics. To find out what might be causing the behavior changes, the researchers then measured brain chemistry in mice. They found changes in a part of the brain involved in emotion and mood, including increases in a chemical called brain-derived neurotrophic factor, which plays a role in learning and memory (*Current Opinion in Microbiology* Jun 2013 16(3):240–245). The research is stimulating scientists to propose probiotic therapy for treating behavioral disorders such as bipolar disorder and depression—something you read about in these pages several years ago.

CENSORED TEDX?

TEDx talks on the Internet have brought much fascinating scientific work to the attention of the public. But a recent letter from TEDx director Lara Stein and Emily McManus, editor of TED.com, to the various organizers of TEDx talks

demands the exclusion of speakers on subjects like GMO dangers, food as medicine, especially food to treat a specific condition, and the relationship of vaccines and autism. The letter implies that subjects such as anti-vaccination and alternative health are not backed by science or data. Speakers with nonstandard degrees, not affiliated with a university "with a solid reputation," or who created their own websites should not be considered for the TEDx spotlight, say McManus and Stein. TEDx talks that are already posted, but that reflect "bad science" or "pseudoscience" will be taken down.

DEPRESSION, PREGNANCY AND BABY'S IQ

Pregnant women who are depressed often turn to junk food for comfort, but they could be damaging their children's brain power in later life, warn researchers. A new study found a link between unhealthy eating in pregnancy and depression, which can affect a child's IQ scores at the age of eight. The research team studied almost seven thousand women and their children, who were part of the Avon Longitudinal Study of Parents and Children in the UK. The women were assessed for symptoms of depression five times between the period when they were eighteen weeks pregnant and when their child was thirty-three months old. They were also asked to complete a food questionnaire to assess their eating habits when they were thirty-two weeks pregnant and again when their child was forty-seven months old. The children's cognitive function was assessed when they were eight years old by using tests of performance IQ and verbal IQ. Women who had symptoms of depression were more likely to eat an unhealthy diet, the study found. This meant they were mostly eating processed food such as chips, crisps, meat pies or pasties and junk food, defined as chocolate bars, cakes, cookies and white bread, which are high in unhealthy trans fats. These factors linked to their eight-year-olds having a lower IQ than children of mothers eating a more healthy diet (www.dailymail.co.uk, Oct 9, 2013).

EXTRUSION TO THE RESCUE

"Human beings eat 183 billion pounds of chicken every year, and just about nobody thinks that the way we grow and process these living creatures is sustainable," writes chef and Food Network host Alton Brown. The solution, of course, is pasture

WAPF on the WEB

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feeding, which produces healthy meat while revitalizing the soil, but food manufacturers see the unsustainability of modern chicken production as a golden opportunity to market fake chicken meat. Replicating meat flavor is easy—just throw in a truckload of fake chicken flavors. Replicating meat texture is the hard part and this is where the extrusion process saves the day. Food processing company Beyond Meat has come up with a process they say reproduces the texture of chicken exclusively. In a puff piece published in *Wired Magazine*, which could have been lifted straight from the pages of the satirical publication *The Onion*, Brown describes Beyond Meat's fake chicken-making process as follows: "The extruder . . . uses steam, pressure and cold water to knead and knit the proteins and plant fibers in the Beyond Meat mixture into a specific physical arrangement. . . . This is what separates Beyond Meat's chicken analog from Tofurky. . . . Fresh out of the extruder, a strip of Beyond Meat not-chicken is warm but not hot, striated like meat, and to the touch feels animal in origin. . . It's more like meat than anything I've ever seen that wasn't meat. Looking closely I can see a repeating pattern, like a subtle honeycomb, that reminds me a bit of tripe. I close my eyes and smell, but since the strip hasn't received any flavoring at this point, I detect only subtle hints of soy. I take a bite. While the unflavored product tastes distinctly vegetal and still has a bit of what I'd call tofu-bounce, a hint of the spongy, the tear is … meaty." Beyond Meat claims their goal is to reduce the environmental issues associated with industrial agriculture, and to get meat eaters to cut down on their meat intake. "In a few generations, vegetable-based meats may be the only meat some young people have ever experienced," says Brown (www.wired.com/wiredscience/2013/09/fakemeat/). And won't the soy industry be happy about that!

HOLES IN THE DIKE

While Americans may remain fat-phobic, the anti-saturated fat mantra is crumbling in other parts of the world. In the UK, the *British Medical Journal* has published an article by cardiologist Aseem Malhotra, who blasts the notion that saturated fats cause heart disease, noting that when you take satisfying fats out of the diet, the food tastes worse and you compensate by replacing saturated fat with sugar (*BMJ* 2013;347:f6340). Following Malhotra's article, Joanna Blythman, writing for *The Guardian*, staunchly defends butter. "The anti-sat-fat message has been used effectively by food manufacturers to woo us away from whole, natural foods such as butter, which is only minimally processed, on to their products, which are entirely the opposite, such as margarine," she says, noting that a 2010 review concluded that there is no convincing evidence that saturated fat causes heart disease (*Am J Clin Nutr.* 2010 Mar;91(3):535-46). In Australia, ABC's Catalyst TV program, "Heart of the Matter" sent the Internet abuzz with its challenge to the lowfat agenda; this brave program was followed by Part II, "Cholesterol Drug War," which challenged the notion that we should be taking cholesterol-lowering drugs. And finally, Sweden has become the first Western nation to reject lowfat diet dogma in favor of low-carb, high-fat nutrition. The switch in dietary advice followed the publication of a two-year study by the independent Swedish Council on Health Technology Assessment, which reviewed sixteen thousand studies. The conclusion: butter, olive oil, heavy cream and bacon are not harmful foods. Quite the opposite. Fat is the best thing for those who want to lose weight. And there are no connections between a high-fat intake and cardiovascular disease (sciencenordic.com/low-carb-diets-hold-sway-short-term).

RADIATION PROTECTION

With the crisis at Fukushima, we are often asked for advice on protection against radiation damage. A kind reader has send us an article from 1984 which suggests that our old friend vitamin A may be a key vitamin in protecting against injury from radiation. This study looked at vitamin A for protection against radiation injury and poor wound healing. Rats whose diets were supplemented with 150,000 IU vitamin A per kilogram of diet showed protection against thymic damage, adrenal emlargement, leukopenia, gastrointestinal ulceration and impaired wound healing—overall a lessening of the adverse effects of radiation (*Ann Surg* 1984 Oct;200(4):494-512). So in these perilous nuclear times, be sure to eat liver and take your cod liver oil!

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.

Beyond Cholesterol

Fat-Soluble Vitamins in the Prevention of Heart Disease

By Chris Masterjohn, PhD

In the second edition of *Nutrition and Physical Degeneration*, Weston Price published data suggesting that fat-soluble vitamins from animal fats might protect against heart disease. Between 1928 and 1945, Price collected over twenty thousand samples of butterfat to analyze for fat-soluble vitamins, from many regions across the United States, northwestern Canada, Australia, Brazil and New Zealand.

His data suggested that abundant sunshine, rainfall and high-quality soil led to an abundance of rapidly growing, lush, richly green grass, butterfat rich in fat-soluble vitamins, and fewer deaths from heart disease. Our understanding of heart disease has progressed immensely since Price's time, and now more than ever we can be confident that Price's emphasis on the protective power of fat-soluble vitamins was correct.

FOOD SOURCES OF THE FAT-SOLUBLE VITAMINS

Price placed special emphasis on vitamins A, D, and K. These vitamins are richest in butterfat when cattle are raised in the open sunshine and consume richly green grass, leading to a deeply yellow or even orange butterfat. Price also noted other important sources of fat-soluble vitamins. He concluded from his studies of traditional peoples that while some groups obtained fat-soluble vitamins primarily from dairy foods, others obtained them primarily from organ meats and eggs, from the animal life of the sea, or from insects and other small animals. In his own practice, he emphasized organ meats, cod liver oil, butterfat and fish, supplemented by colorful vegetables, as sources of fat-soluble vitamins. What we know about food sources of fat-soluble vitamins in our own era could be summarized as follows.

Vitamin A is found only in animal foods. Animals store vitamin A primarily in their livers. As a result, the best sources of vitamin A are the livers of land animals or fish. Oil extracts of these livers, such as cod liver oil, are similarly excellent sources of vitamin A. Although not often used as food in modern diets, eyeballs contain even higher concentrations of the vitamin because of its important role in vision, as does the tissue located behind the eyeballs.

Smaller amounts of vitamin A are found in the fatty tissue of animals. Because of its critical role in growth and development, the fats most closely related to reproduction—butterfat, meant to nourish a young animal, and egg yolks, meant to become a young animal—tend to be richer in vitamin A than other animal fats.

Vitamin A is found only in animal foods.

Carotenoids from plant foods are often confused with vitamin A, but they are not the same thing. There are over six hundred known carotenoids, roughly 10 percent of which are precursors to vitamin A. Among these, the most important in our diets are beta-carotene, alpha-carotene and beta-cryptoxanthin. Carotenoids provide plants with red, orange and yellow colors. Because they play an important role in photosynthesis, they are closely associated with chlorophyll, which imparts a green color. Red, orange, yellow and green colors thus provide a strong indication that a plant is rich in carotenoids, which we can potentially convert to vitamin A.

Many factors affect the ability to convert carotenoids to vitamin A,[1,2] making them a highly variable and less reliable source of the vitamin than animal foods. The percentage of carotenoids converted to vitamin A ranges from 3 to 25 percent for most plant foods. The conversion is much higher from foods with simple matrices; as a result, it is highest from red palm oil, intermediate for fruits, and lowest for vegetables. Cooking and puréeing fruits and vegetables, however,

ARTICLE SUMMARY

- Betweem 1928 and 1945, Weston Price measured the fat-soluble vitamin content of over twenty thousand samples of butterfat from many different regions. He found that abundant sunshine and rainfall, together with high-quality soil, was associated with high concentrations of vitamins within the butter and fewer deaths from heart disease.
- Modern science has shown that vitamins A, D, and K cooperate to prevent the calcification of arterial plaque, which in turn prevents heart disease. This confirms Price's conclusions that fat-soluble vitamins protect against heart disease.
- We can maximize our fat-soluble vitamin status by consuming a diet rich in organ meats, animal fats, fatty fish, cod liver oil, and fermented foods, supplemented with leafy greens and other colorful vegetables; by spending lots of time out in the fresh air and sunshine; and by using traditional fats and oils while avoiding modern vegetable oils.
- Vitamin D can be a double-edged sword: adequate vitamin D prevents heart disease, but too much vitamin D promotes heart disease. The available evidence suggests that the lowest risk of heart disease occurs when vitamin D status is between 20 and 40 ng/mL.
- Trying to determine optimal vitamin D status is very problematic. Rather than trying to achieve an optimal vitamin D status with vitamin D supplementation, most people should focus more on optimizing the nutrient density and nutrient balance of the diet.

The inclusion of nutrient-dense animal foods in the diet is a critically important insurance policy against vitamin A deficiency.

increases the conversion. Fiber, parasites, toxic metals, oxidative stress and deficiencies of iron, zinc, protein and thyroid hormone all decrease the conversion. Conversely, fat, vitamin E and a deficiency of vitamin A increase the conversion. It is quite easy to see how complex this issue can become. Someone who is deficient in vitamin A will make more of it from plant foods, but what if that person is also deficient in iron and protein, or suffers from hypothyroidism?

Even if all these factors are optimized, there is a strong effect of genetics. Almost half of people with European ancestry have a genetic mutation that decreases their ability to make the conversion at least twofold, and about a third have a second mutation that decreases their ability to make the conversion fourfold.[3] Thus, while many people may be able to extract adequate vitamin A from plant foods, many may not. For the latter, even if they use red palm oil, cook or purée their fruits and vegetables, eat those fruits and vegetables with fat, minimize their exposure to toxins, and have healthy digestive systems and optimal hormonal status, their genetics will prevent them from satisfying their need for this vitamin from plants alone. The inclusion of colorful fruits and vegetables in the diet is an excellent way to supplement more reliable sources of vitamin A, but the inclusion of nutrient-dense animal foods in the diet is a critically important insurance policy against vitamin A deficiency and a more reliable and robust way of optimizing vitamin A status.

We obtain vitamin D through exposure to sunshine and from consuming the bodies of fatty fish, the livers and liver oils of fish, and in smaller amounts from other animal fats, especially butterfat and egg yolks.

PRICE'S ANALYSIS OF BUTTER SAMPLES: A CLOSER LOOK

Price collected samples of butterfat every two to four weeks from many different regions. This allowed him to trace the fat-soluble vitamin content of the butter through the year in each region. He also assembled data provided by other researchers showing how sunshine, rainfall and mortality from heart disease and pneumonia varied through the year in the same regions.

Price presented the mortality data for both diseases combined. This makes the graphs cleaner and more readable but precludes us from analyzing the trends for heart disease and pneumonia separately. In all likelihood, the fat-soluble vitamins found in the butterfat protected against both diseases. Clinical trials over the preceding two decades had clearly demonstrated the power of vitamins A and D—and cod liver oil, which contains a rich supply of both vitamins—to protect against many different infectious diseases.[17,18] The main text of this article focuses on the evidence supporting the power of these vitamins and their synergistic partner, vitamin K, to protect against heart disease.

Although this article focuses on vitamins A, D, and K as a synergistic trio, Price only used two chemical tests to look for fat-soluble vitamins. His test for vitamin A used toxic reagents and lacked perfect specificity—it picked up carotenoids, for example, which are also present in butter—but it was a good test, dominant through the 1970s, and is still used in some laboratories today. Price's second test, however, has a more complicated story behind it.

From Price's time through our own, scientists have primarily used the test to detect lipid peroxides, which are formed when delicate polyunsaturated fatty acids suffer oxidative damage. Based on research suggesting a correlation between an oil's potential to oxidize and its vitamin D content, Price initially used the test as an imperfect way to measure vitamin D. It soon became clear, however, that isolated vitamin D caused soft tissue calcification. Butterfat scoring high on the test, by contrast, seemed to safely and effectively promote the calcification of bones and teeth, especially when combined with cod liver oil, and seemed to have broader activities that no one had yet ascribed to vitamin D. Price therefore dropped the term "vitamin D" from his butterfat analysis and began using the term "activator X."

Researchers publishing in Russian- and German-language literature, unbeknownst to Price and many others writing in English, had been using the same test to detect the synthetic chemical benzoquinone, which belongs to a class of chemicals known as quinones. Decades later, researchers publishing in English showed that the test detects biological quinones such as coenzyme Q_{10}. Vitamin K is another such quinone, and appears to be the compound Price was trying to measure. It exists in two forms: K_1 and K_2. Cows obtain vitamin K_1 from grass and convert a portion of it to vitamin K_2. Both forms of the vitamin are present in the butterfat and presumably registered as "activator X" in Price's test. Vitamin K_2, moreover, has all the biological characteristics Price attributed to activator X. A comprehensive

Vitamin K comes in two forms: vitamin K_1 and vitamin K_2. Vitamin K_1 is most abundant in leafy greens, while vitamin K_2 is most abundant in animal fats and fermented foods. The richest sources of vitamin K_2 in modern diets are egg yolks and cheese, especially hard cheeses. While much more data documenting the distribution of vitamin K_2 in foods is needed, current databases suggest that the richest sources of the vitamin are natto, a fermented soy food common in Eastern Japan, and goose liver.

Vitamin K_2 appears to be much more effective at preventing pathological calcification than vitamin K_1, but there is some overlap between the two, and humans have a limited ability to convert K_1 to K_2. Emerging evidence also suggests that the form of vitamin K_2 found in animal foods has unique functions not possessed by the form found in fermented foods. The wisest approach to vitamin K nutrition seems to be to cover all the bases by eating a diet rich in leafy greens, animal fats and fermented foods.

When looking at nutritional databases, it is important to keep in mind that these databases universally ignore the variation in nutrition between different foods. "Butter" is likely to have a single value for each nutrient, but a major point of Price's analysis of over twenty thousand butter samples was the extreme variation in nutrient values. The factors responsible for this variation are discussed in detail in the sidebar below.

It is also important to keep in mind that the context in which these foods are eaten determines the availability of their nutrients. Fat, for example, is critical to the absorption of fat-soluble vitamins. The absorption of carotenoids from salad with no added fat is close to zero, while the addition of canola oil increases their

Fat is critical to the absorption of fat-soluble vitamins.

argument identifying activator X as vitamin K_2 can be found in my Spring 2007 *Wise Traditions* article, "On the Trail of the Elusive X-Factor: A Sixty-Two-Year-Old Mystery Finally Solved."[9]

Price wrote in *Nutrition and Physical Degeneration* that the vitamin A and activator X content of butterfat was related more to rainfall than sunshine, depended most closely on the rapid growth of lush, green grass, and peaked at much greater concentrations in regions where the soil remained most intact. There is a simple explanation for these findings. When grass rapidly grows, it ramps up its photosynthetic activity. Photosynthesis uses energy from sunlight and electrons from water to convert carbon dioxide to sugar, which is needed to fuel growth. Essential components of the photosynthetic machinery include chlorophyll, beta-carotene and vitamin K_1.[19] Chlorophyll imparts a deep green color to the grass. Cattle convert a portion of beta-carotene to vitamin A and a portion of vitamin K_1 to vitamin K_2. All four nutrients are present in the butterfat, and the beta-carotene imparts a yellow or even deeply orange color to it.

The photosynthetic machinery also depends critically on minerals from the soil, including iron, sulfur, calcium and magnesium.[19] A deficiency of any other essential soil mineral can also limit the ability of a plant to ramp up photosynthesis. Boron, for example, is not directly involved in the photosynthetic machinery, but its deficiency compromises photosynthesis and depletes chlorophyll and beta-carotene.[20] Lack of available boron could be caused by lack of boron itself or by factors that compromise its bioavailability such as high soil pH or low concentrations of organic matter. We can conclude from all this that the recipe for high vitamin A and activator X concentrations in butterfat is adequate water, sunshine and soil health, which together support the rapid growth of grass.

If Price was correct that the difference in peak vitamin content between different regions was primarily a result of soil quality, then it is clear from his data that soil health is often the limiting factor: regions with long histories of soil depletion had low levels of fat-soluble vitamins year-round. Price dismissed the role of sunshine and suggested rainfall was more dominant, probably because peak rainfall tends to occur when sunshine is already adequate and rainfall is more often the weakest of the two links in the chain. Had Price been able to resolve the conundrum presented by the "activator X" test, however, he would likely have recognized a greater role for sunshine. Cattle obtain vitamin D from the sun, not from grass. Price did not have access to a reliable chemical test for vitamin D, but other researchers at the time tested the vitamin D content of butterfat by measuring its ability to prevent rickets in experimental animals. These studies showed that the vitamin D content of butter correlates closely with the exposure of the cattle to sunshine.[21] Indeed, if we analyze Price's data closely, it seems that both sunshine and the vitamin content of butterfat are associated with fewer deaths from heart disease and pneumonia. This is probably because during periods of greater sun exposure, people made more of their own vitamin D and obtained more vitamin D from butterfat; when the grass was growing most rapidly, the butterfat also provided abundant amounts of vitamins A and K, enabling maximal synergy between the three vitamins.

absorption.[4] The type of fat also matters. Compared to safflower oil, beef tallow promotes better absorption of beta-carotene and better conversion to vitamin A.[5] Similarly, olive oil promotes better carotenoid absorption than corn oil.[6] It appears from the available evidence that traditional fats and oils emphasizing saturated and monounsaturated fatty acids promote much better fat-soluble vitamin absorption when compared to modern polyunsaturated vegetable oils.

Overall, then, we can maximize our intake of these vitamins by consuming liver, cod liver oil, fatty fish, animal fats and fermented foods, and by getting plenty of fresh air and sunshine. Fruits and vegetables displaying red, orange, yellow, and green colors help supplement our intakes of these vitamins. Adding traditional fats and oils to the diet, while excluding modern vegetable oils, helps maximize the biological activity of these vitamins.

PROTECTION AGAINST CALCIFICATION AND PLAQUE RUPTURE

While there are likely many ways this fat-soluble trio protects against heart disease, this article will focus on the most well established link: by protecting against the calcification of arteries, these vitamins in turn protect against the rupture of atherosclerotic plaques. Plaque rupture is the principal cause of the narrowing

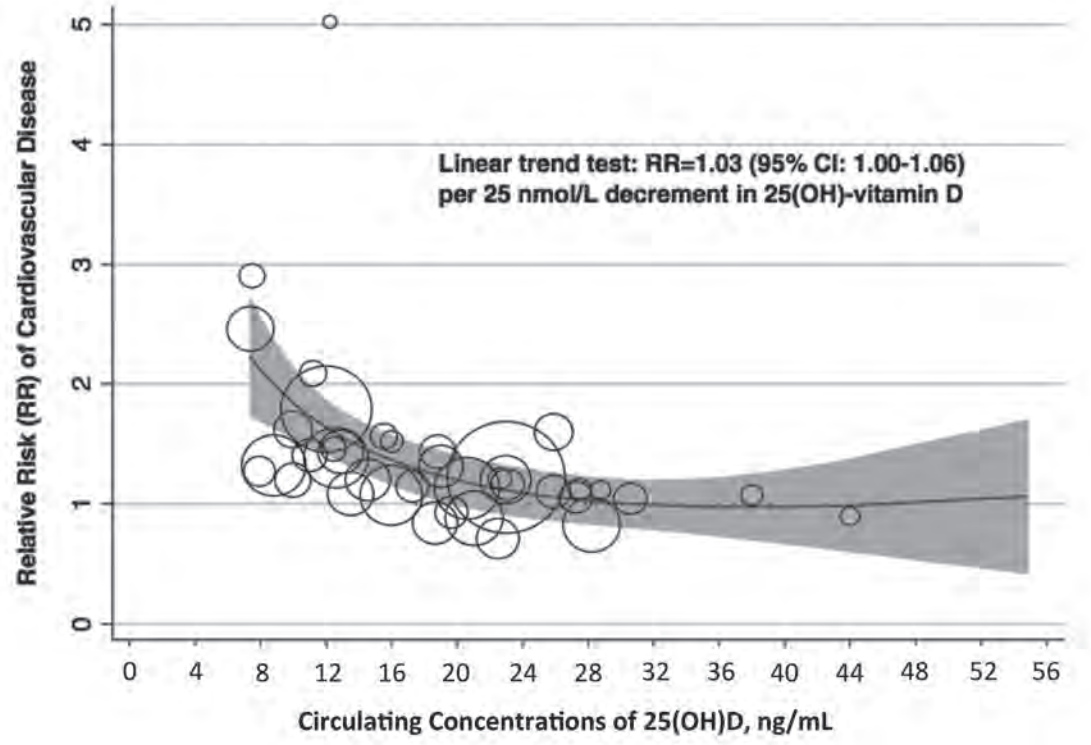

Figure 1: The Risk of Cardiovascular Disease Declines with Increasing 25(OH)D Up to 24 ng/mL

This figure is adapted from Figure 3 as originally published in reference 27. The horizontal axis has been converted from nmol/L to ng/mL so that the units correspond to those used by clinical laboratories in the United States. The figure depicts data pooled from sixteen independent studies measuring serum 25(OH)D and subsequent risk of cardiovascular disease. 25(OH)D is a metabolic product of vitamin D that is often used as a measure of vitamin D status, though there are problems with this. Each circle represents an independent risk estimate for a given category of 25(OH)D from an individual study. The size of the circle represents the statistical power of the study, driven in part by low variation but mostly by large sample size. Circles further to the right represent higher concentrations of 25(OH)D and those higher up represent higher risks of cardiovascular disease. The shaded area represents the confidence interval. The more narrow the shaded area, the higher our confidence in the estimates; the wider the shaded area, the more uncertainty we have.

The risk of cardiovascular disease declines with increasing 25(OH)D up to 24 ng/mL but appears to plateau thereafter. There are only two data points with poor statistical power at concentrations higher than 32 ng/mL and there are no data points at concentrations higher than about 45 ng/mL. The paucity of the data in these regions makes the uncertainty surrounding the risk estimate very high, represented by the increasingly wide shaded area.

of coronary arteries and the formation of deadly clots in these arteries, and thus plays a major role in heart attack and stroke (see sidebar, page 18).

Until recently, most heart disease researchers considered the calcification of arterial plaque to be a phenomenon that starts only after atherosclerosis has become severe. They questioned, moreover, whether such calcification is truly harmful in and of itself or is simply a marker for the overall severity of the disease.

In the past few years, however, it has become clear that calcification begins in the very earliest stages of atherosclerosis.[7] In hindsight, it is not too surprising that researchers previously missed this: nearly all of the calcification in a plaque site—a full of 97 percent of it, in fact—is so small that modern imaging equipment designed to visualize calcification in a live human being is incapable of detecting it.[8] These "microcalcifications" make a plaque up to five times more likely to rupture under stress.[8] Depending on the severity of the rupture, this will lead either to greater narrowing of the artery or to a cardiovascular "event" such as a heart attack or stroke (see sidebar, page 18).

The calcification of atherosclerotic plaque occurs in parallel with the accumulation of a defective, inactive form of matrix Gla protein (MGP).[7] This fact provides a strong hint about the role of the fat-soluble trio: as

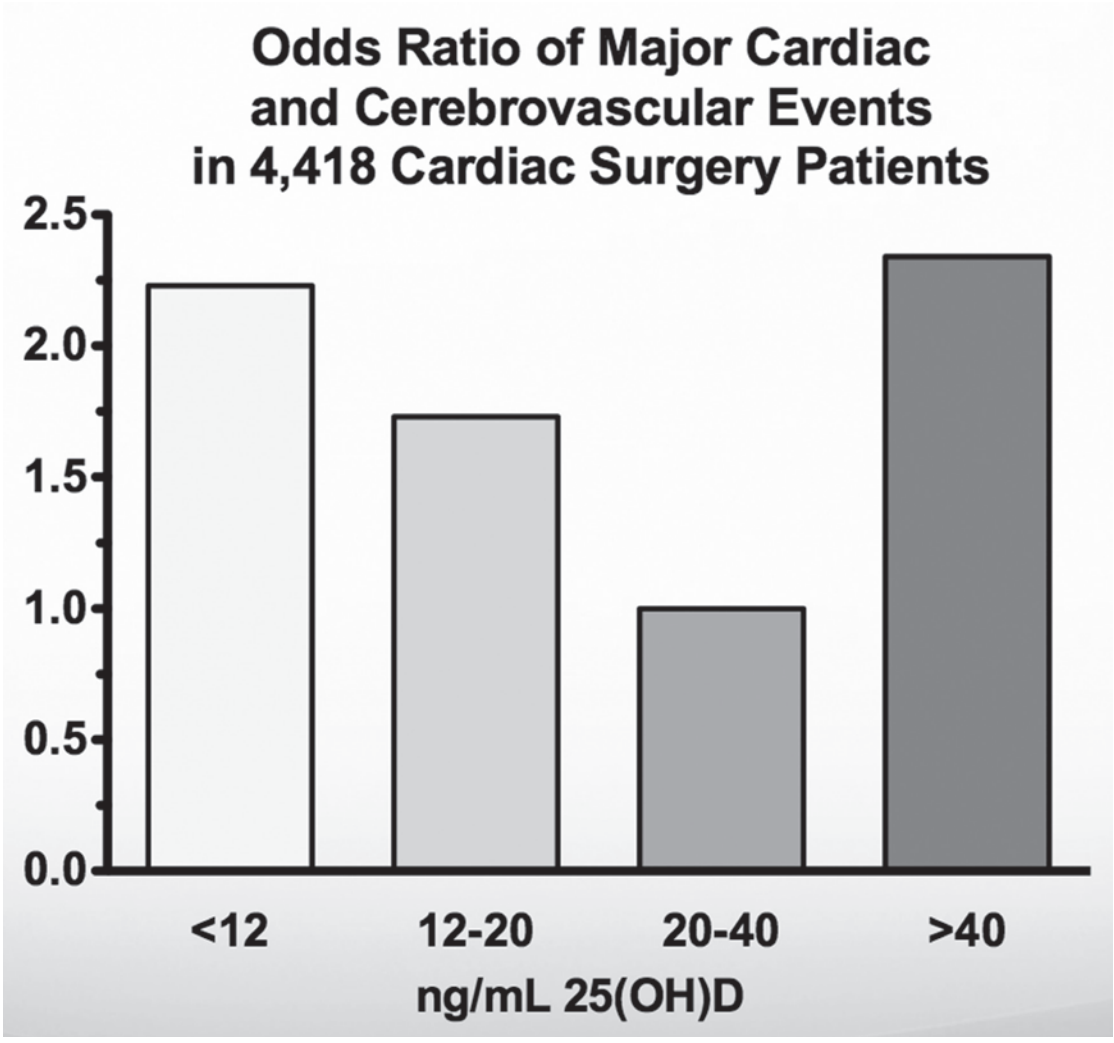

Figure 2: The Risk of Cardiovascular Events is Lowest between 20-40 ng/mL among Cardiac Surgery Patients

This figure is adapted from the data in reference 28. The researchers measured serum 25(OH)D in just under 4,500 cardiac surgery patients, in whom the risk of future cardiovascular events was very high. Over the following year, 11.5 percent of the patients suffered a major event. The risk decreased with increasing concentrations of 25(OH)D up to 40 ng/mL, but increased thereafter. Those with 20-40 ng/mL had the lowest risk, but those with concentrations greater than 40 ng/mL had just as high a risk as those with less than 12 ng/mL.

Mice with a genetic defect preventing them from producing MGP fail to accumulate calcium in their bones.

has been known for quite some time, vitamins A and D cooperate together to control how much MGP our cells produce; once produced, vitamin K activates the protein, thereby enabling it to control the distribution of calcium.[9]

Indeed, mice with a genetic defect preventing them from producing MGP fail to accumulate calcium in their bones, suffer from osteopenia and spontaneous fractures, and yet die within two months of birth from the rupture of heavily calcified arteries.[10] It is primarily vitamin K_2, found in animal fats and fermented foods, that activates MGP, which likely explains why people with the highest intakes of vitamin K_2—primarily from egg yolks and cheese—have much lower rates of arterial calcification and coronary heart disease.[11]

VITAMIN D: A DOUBLE-EDGED SWORD?

While vitamin K, especially vitamin K_2, seems to be straightforwardly protective, the story of vitamins A and D is more complex. When vitamins A and D are both provided abundantly, they maximize the protective effect of vitamin K, but when vitamin D is provided in great excess of vitamin A, it actually promotes abnormal, pathological calcification of soft tissues, including arteries.[12,13,14] This finding suggests that vitamin D may be a double-edged sword, with the ability to either prevent or promote heart disease, depending on the dietary context in which it is provided.

Indeed, both severe deficiencies of vitamin D[15] and hefty excesses of the vitamin[16] promote atherosclerosis in animal experiments. Observational studies in humans show that the risk

PLAQUE RUPTURE AND CORONARY HEART DISEASE

An up-to-date review of the best evidence available today suggests that the current view of heart attacks—that most are caused by the occlusion of coronary arteries by blood clots known as thrombi or less often by severe narrowing of the coronary arteries—is largely correct.

The role of thrombi in heart attacks was highly controversial during the mid-twentieth century through the 1970s.[22] Some studies found coronary thrombi in fewer than 10 percent of cases, while others found them in over 90 percent of cases. Some research even showed that clots were more often found when people had died at least twenty-four hours after the onset of a heart attack and were rarely found when they died within an hour of the heart attack, suggesting that clots may be a consequence rather than a cause of heart attacks, forming in the distant aftermath of a fatal event. Researchers tried to determine whether clots form before or after heart attacks by injecting people with radiolabeled fibrin soon after a heart attack to see whether the clots contained the radiolabel, but the results were conflicting and difficult to interpret.

In 1979, a team of English researchers made a compelling argument that several methodological and interpretive problems were at the root of the controversy.[22] Even within the same hospital, some analysts were much more likely than others to find thrombi after heart attacks, largely because of variations in the methods used. Similarly, studies using more careful methods were more likely to find thrombi. Sudden death was often lumped together with heart attacks, even though there is no way to know that a sudden death is actually due to a heart attack. During a true heart attack, cells of the heart die and spill out certain enzymes into the blood. If the person lives, a doctor can verify a heart attack by finding these enzymes in the blood. If the person dies, a doctor can verify a heart attack by finding these enzymes missing from the heart tissue. To run this test at autopsy, however, the person must have died at least six hours after the heart attack, and the most accurate results are found when the person died at least twelve to twenty-four hours after. Thus, not finding coronary thrombi in someone who died within an hour of a heart attack could just be an indication that the person did not die of a heart attack at all. Most studies of the time didn't adequately differentiate between different types of heart attacks. Heart attacks where the cell death is spread diffusely through the heart tissue are rarely associated with coronary thrombi but are frequently associated with severe narrowing of all three coronary arteries. Heart attacks where the cell death afflicts a very specific region of the heart are much more common and are almost always associated with coronary thrombi. Finally, the most carefully conducted and analyzed studies using radiolabeled fibrin suggested that coronary thrombi begin to form before a heart attack occurs, and after the heart attack they continue to grow and then eventually dissolve.

In 1980, angiography allowed researchers to look for the first time for coronary thrombi in live people suffering

of heart disease declines as vitamin D status increases. This relationship plateaus at about 24 ng/mL, and there is very little data exploring higher levels (see Figure 1). However, a recently published study suggested that having vitamin D status higher than 40 ng/mL is just as dangerous as having vitamin D status lower than 12 ng/mL (see Figure 2). When viewed together, the evidence in animals and humans suggests that vitamin D protects against heart disease at the right dose, but that too much vitamin D actually contributes to heart disease.

Many readers may be surprised that people with vitamin D status higher than 40 ng/mL have a higher risk of heart disease when so many advocates of vitamin D supplementation recommend levels much higher than this. Part of the reason many people recommend higher levels is because they view the evidence within the framework of the very influential but very problematic "naked ape" hypothesis of optimal vitamin D status (see sidebar, page 20).

We should keep in mind, however, that none of these studies takes into account the interactions between vitamins A, D and K. It may be that vitamin D status higher than 40 ng/mL protects against heart disease in the context of a diet that provides liberal amounts of organ meats, animal fats and fermented foods. It may also be that a simple cause-and-effect relationship between vitamin D exposure and serum 25(OH)D, or between serum 25(OH)D and disease risk, greatly oversimplifies the issue (see sidebar, page 20). The uncertainty over these questions underlines the need to pay more attention to optimizing the nutrient density and nutrient balance of the diet

People with vitamin D status higher than 40 ng/mL have a higher risk of heart disease.

from heart attacks.[23] Coronary thrombi were almost always present in the first six hours after the onset of symptoms. Between six and twenty-four hours after the onset of symptoms, thrombi were found less often, being present in 80-85 percent of cases and completely occluding a coronary artery in 65-70 percent of cases. This study contradicted the suggestion of earlier research that clots are more likely to form twenty-four hours after a heart attack occurs. Instead, it suggested that clots are almost universally present in the earliest hours and begin dissolving after six hours. This strengthened the alternative interpretation of earlier research, which held that thrombi were not found when people died a short time after their putative heart attack because they had suffered from misclassified cases of sudden death and in fact had not suffered from a heart attack at all.

Taken together, the evidence suggests that coronary thrombi are responsible for the more common regional heart attacks and that severe narrowing of the coronary arteries contributes to the less common diffuse heart attacks. Both of these factors reduce the supply of blood and the oxygen it carries, making cells vulnerable to death. None of this suggests that other factors are not important. Indeed, there may be many factors that make some cells vulnerable to damage during transient deprivation of oxygen and make others less vulnerable. There may also be other acute events involved that transiently deprive cells of oxygen or otherwise impair their metabolism, particularly in the less common diffuse heart attacks.

The principal cause both of coronary thrombi and coronary narrowing is plaque rupture. In the case of thrombi, rupture allows the inflammatory contents of the plaque to spill out into the blood and cause the sudden formation of a clot.[24] The case of narrowing may seem less intuitive. When atherosclerotic plaque accumulates, it does not grow inward into the blood vessel like grease clogging a pipe. It actually accumulates inside the blood vessel wall, pushing the wall outward, allowing an equivalent or even larger space for blood to flow within the vessel.[25] When the plaque environment becomes sufficiently inflammatory, plaque rupture ensues. If the aftermath of the rupture is mild, the plaque will heal itself. This healing process results in successive plaques overlaying each other, with each healed rupture intruding more and more into the inside of the artery.[26] Thus, severely inflammatory ruptures contribute to an occlusive thrombus that may result in an immediate heart attack, while mild ruptures lead to progressive narrowing of the arteries, which impedes blood flow and could eventually contribute to a heart attack.

What causes plaques to rupture? As plaque develops, it forms a highly protective fibrous cap that is rich in collagen. The accumulation of oxidized lipids leads to an inflammatory environment that degrades collagen and prevents its synthesis.[24] Lack of nutrients needed to synthesize collagen, such as vitamin C and copper, could play a role, as could infiltration of the plaque by infectious microbes. Plaques that are richest in oxidized lipids and poorest in collagen are most likely to rupture. As discussed in the main text, though, even when these factors are held constant, small deposits of calcium in the fibrous cap greatly increase its vulnerability to stress and make it far more likely to rupture. The fat-soluble trio—vitamins A, D and K—forms our principal defense against this calcification.

PROBLEMS WITH THE "NAKED APE" HYPOTHESIS OF OPTIMAL SERUM 25(OH)D CONCENTRATIONS

One of the most widely influential perspectives about 25(OH)D that appears in the scientific literature and pervades the alternative health literature is the "naked ape" hypothesis of optimal serum 25(OH)D. This hypothesis holds that humans evolved as "naked apes" in the tropical savannahs of Africa where they were exposed to maximal sunshine and when the requirement for 25(OH)D was indelibly fixed into our genome. Now that we have invented modern clothing, indoor living, and migrated far from the tropics, most of us have far lower 25(OH)D than we had "back when we evolved," as shown by the much higher levels of 25(OH)D found in lifeguards working in Missouri and Israel. Reinhold Vieth promoted this view in a popular 1999 article.[29] At the time of this writing, Google Scholar reports that this article has been cited 1,159 times.

While it may seem compelling on the surface, the argument is deeply problematic. The hypothesis assumes that at some point between the loss of body hair and the gain of clothing we existed as naked sunbathers, and it was at just this very point where the requirement for serum 25(OH)D was indelibly fixed into our genome. If we take "molecular clock" estimates at face value, the loss of body hair and the gain of dark skin pigmention both occurred 1.2 million years ago,[30,31] indicating we were never truly "naked" since both hair and pigment protect the skin from ultraviolet light. Evidence for hide scrapers likely used to make leather, either for clothing or some other form of shelter from the sun such as housing, goes back almost eight hundred thousand years.[30] Clothing was certainly in widespread use by the time clothing lice diverged from head lice, which scientists estimate occurred some one hundred seventy thousand years ago.[30] Colored pigments appear in the African archeological record over a quarter million years ago and remain a constant feature of African culture through the present.[32] These may have been used to paint the skin, as commonly occurs in Africa today. Weston Price wrote in *Nutrition and Physical Degeneration* that it was a universal tradition in the Pacific Islands to use coconut oil as a sunscreen, and there is no particular reason to doubt the premise that prehistoric humans used botanical sunscreens as well. African primates and traditionally living African humans seek shade from the hot sun at mid-day.[33,34] Prehistoric humans living in the African savannah were thus likely to be neither "naked" nor sunbathers.

Most of prehistoric human life was dominated by glacial periods in which the earth was substantially colder and aerosolized dust and salt were much higher.[35] The lower exposure of the earth to solar radiation and the higher aerosols during these times probably made the average UV-B exposure considerably lower, suggesting that no living human beings provide a proxy for prehistoric 25(OH)D levels. The worst example we could possibly use for such a purpose, however, are modern lifeguards. The Israeli lifeguards whose high 25(OH)D Vieth cited in his 1999 paper as the closest approximation to the vitamin D status of our "naked ape" ancestors had evidence of sun damage and twenty times the risk of kidney stones as the general population. The lifeguards had a mean 25(OH)D higher than 50 ng/mL, and their increased risk of soft tissue calcification is consistent with the increased risk of cardiovascular disease that occurs above 40 ng/mL (see Figure 2).

Additionally, certain populations seem adapted to a lower "normal" 25(OH)D. Greenland Inuit on their traditional diet have a mean serum 25(OH)D of only 20 ng/mL, but appear to convert 25(OH)D to the more active 1,25(OH)2D at a higher rate.[36] Similarly, African Americans have lower 25(OH)D than white Americans, but higher 1,25(OH)2D and higher bone density.[37] It seems that these groups have lower 25(OH)D but higher total biological activity of vitamin D, creating the illusion of a "deficiency" that does not actually exist. If different groups are adapted to different optimal levels of 25(OH)D, moreover, this suggests that the requirement for 25(OH)D has continued to evolve over time and was never indelibly fixed into the human genome at any point, certainly not in some fictitious era of the "naked ape."

The very concept of an optimal 25(OH)D may itself be flawed. The total biological activity of vitamin D is determined by both 25(OH)D and the much more active 1,25(OH)2D. The conversion of 25(OH)D to 1,25(OH)2D is, like many other steps in vitamin D metabolism, partly determined by genetics.[38] Many other factors can influence either the demand for or the supply of 1,25(OH)2D. Calcium deficiency increases the demand for it and lowers 25(OH)D status independently of vitamin D exposure.[39] Vitamin A, by contrast, seems to increase the supply of 25(OH)D to the kidney, making it easier to convert it to 1,25(OH)2D.[40] Acute inflammation[41] and cancer[42] also increase the conversion. If we only measure 25(OH)D and it is low, we have no idea whether total biological activity of vitamin D is increased or decreased, nor do we know why it is altered or whether this is a concern. The fact that crisis states such as acute inflammation and disease states such as cancer can influence the conversion raises an additional problem: are associations between 25(OH)D and disease risk cause or effect? Until these questions are resolved, we should place much less emphasis on using vitamin D supplements to achieve a desired 25(OH)D and much more emphasis on improving the nutrient density and nutrient balance of the diet.

rather than overemphasizing the usefulness and importance of optimizing blood levels of vitamin D.

AN OLD SOLUTION TO A NEW PROBLEM

The successful traditionally living groups that Price studied placed special emphasis on procuring foods rich in fat-soluble vitamins, supporting the health of their animals, and taking great care to preserve the health of their soil. The causes of the twentieth century emergence of heart disease are debatable, but Price's suggestion that the fat-soluble vitamins provide powerful protection against the disease has gained validation through decades of further scientific inquiry. There is little doubt that the emergence of refined foods, the replacement of butter with substitutes based on vegetable oils, the demonization of eggs, the loss of traditions centered on the use of liver and cod liver oil, the dilution of the nutritional value of animal products through industrial farming, and the campaign against animal fats have all greatly diminished our ability to prevent and reverse this disease. The pervasive view that the foods richest in fat-soluble vitamins are the very causes of heart disease because of their saturated fat and cholesterol is particularly ironic and especially harmful. Returning to the traditional emphasis on foods rich in fat-soluble vitamins may not be the whole answer but it is a critical piece of the puzzle and an essential tool in our kit as we work toward a world where we prevent the inevitable and cure the incurable.

Chris Masterjohn has a PhD in nutritional sciences from the University of Connecticut, where he studied the role of oxidative stress in contributing to the accumulation of toxic byproducts of energy metabolism seen in diabetes and other degenerative diseases. He is currently conducting post-doctoral research at the University of Illinois under Dr. Fred Kummerow, where he is studying interactions between the fat-soluble vitamins A, D, and K. Chris has written five peer-reviewed publications on antioxidants and fat-soluble vitamins. He is the creator and maintainer of Cholesterol-And-Health.Com, a web site devoted to extolling the benefits of cholesterol-rich foods and elucidating the role of cholesterol and other lipids in health and disease. He is a frequent contributor to the Wise Traditions *journal and speaker at the annual* Wise Traditions *conference.*

Price's suggestion that the fat-soluble vitamins provide powerful protection against heart disease has gained validation through decades of further scientific inquiry.

RESEARCH LAB TO CONTINUE WORK OF DR. WESTON A. PRICE...WITH YOUR HELP!

You can help WAPF realize our dream of an independent research lab to study nutrient-dense food. The University of Illinois assures us complete access to the Burnsides Research Lab if we make an annual contribution of $300,000. We have already raised $100,000, allowing our own Chris Masterjohn, PhD, to work with the esteemed Fred Kummerow, PhD, to study the role of fat-soluble vitamins in preventing heart disease. With your help, we can raise the remaining $200,000 and do the following:

- Chris Masterjohn, PhD, can do further research on the fat-soluble vitamins, including the testing of various foods for levels of vitamins A, D, and K;
- We can carry out research on how to maximize the levels of fat-soluble activators in our food;
- We can investigate the impacts of various cooking and preparation techniques on the nutrient profile of the foods we eat.

If each of our members donated just twenty dollars to this cause, we would more than exceed our goal. To donate, go to westonaprice.org and click on the donate button, located on the lower left corner of the screen. If you wish to donate by check, please send a check made out to WAPF/Research Lab and mail it directly to the Foundation.

We will keep you posted on our progress! Thank you in advance for your support!

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Cancer to the Rescue?

How Tumor Cells Work Overtime to Restore Vascular Health

By Stephanie Seneff, PhD

Young or old, every person with a troubling health condition who has turned to the conventional medical system for answers, braces himself for the moment when the diagnosis might come back with the dreaded "C" word. And we have all been conditioned to believe that, following such a dire diagnosis, not a moment is to be wasted: immediate action is needed to surgically remove the tumor.

Of course the prevailing view says that the operation should be followed with radiation therapy and chemotherapy to assure that every last tumor cell has been destroyed. Then we must patiently wait out the five-year "proving" interval in hopes that the cancer doesn't return, or, worse, metastasize to some other tissue such as the brain or the bone marrow. Following cancer treatment, one is forevermore a "cancer survivor." One is never cured.

If you peruse the research literature on cancer, you will find that investigators are frustrated and puzzled by much of what they find. Well-motivated logic and reason typically lead to the development of a new drug that seems like a dynamite idea for disrupting the tumor in some critical way, such as suppressing its blood supply or depriving it of an essential molecule for growth. Yet again and again the clinical trials turn up unexpected dangerous side effects that prevent the drug from going to market. A virulent tumor seems like a cat with nine lives or a phoenix ever arising—it always finds a way to come back to life in a much more deadly form than what it was before it was tampered with.

Cancer is usually portrayed as a disease that befalls us due to "bad luck" or perhaps "susceptible genes." We are not led to believe that lifestyle choices might protect us from cancer. In fact, however, 90 to 95 percent of cancer cases have their roots in environmental and lifestyle factors.[2] We are exposed in our daily lives to a host of chemical carcinogens, only some of which are formally acknowledged. These include toxic fumes from automobile exhaust, toxic pesticides applied to our foods, toxic agents in the vaccines our children are subjected to, various pharmaceutical drugs with carcinogenic potential, and a variety of chemicals like benzene, polychlorinated biphenyls (PCBs) and formaldehyde, to name a few.

Ironically, sunlight is one of the best protective agents against cancer. Although we are encouraged to stay out of the sun or to lather on the sunscreen for fear of getting skin cancer should we venture outside on a sunny day, the truth is that incidence rates of skin cancer have been rising steadily by 2 percent per year for the last thirty years, while sunscreen usage has increased thirty-fold.[34] Sunscreens interfere with vitamin D_3 synthesis in the skin[24] and this effect may more than negatively compensate for any protection they afford from UV exposure.

Sunlight is one of the best protective agents against cancer, and is also excellent treatment therapy after a cancer diagnosis.

Furthermore, places nearer the equator and places with less annual rainfall have lower rates of a multitude of different cancers, including esophageal, gastric, colon, pancreatic, breast, ovarian, rectal, prostate, renal, bladder, cervical, gallbladder, laryngeal, oral and Hodgkins lymphoma.[14] A cancer diagnosed in the summer has a better prognosis than one diagnosed in the winter.[30] And sunlight is also excellent treatment therapy following a cancer diagnosis.[29]

Breast cancer is the number one cancer for women, and one in eight women born today in America is expected to have to confront the disease at some time in life. We are just now questioning an era of active campaigns to insure that every woman get a mammogram every year for "early detection," with the hope that this would surely save lives. Those hopes have now been dashed. A study conducted in Norway showed that aggressive use of mammograms resulted in a substantial *rise* in the rate of breast cancer, followed by no improvement whatsoever in the death rate from breast cancer.[44] The conclusion was that either the radiation exposure from the mammogram increased risk, or tiny tumors that would usually be missed without mammograms were resolving on their own without treatment. Both of these hypotheses are remarkable for their role in changing the mindset towards this disease. Now those in the know are starting to recommend a "watchful waiting" policy towards both breast cancer and prostate cancer, something that most people find very hard to accept after all the years of brainwashing towards the concepts of early detection and immediate aggressive surgery.

These two types of cancer—breast cancer and prostate cancer—are interesting for several reasons, not the least of which is that they are respectively the most common cancers for women and men in the U.S. Breast cancer in particular can be viewed as affecting a "vestigial organ" if it occurs in a postmenopausal woman. A diagnosis of breast cancer is so much better than a diagnosis of pancreatic cancer or brain cancer or liver cancer, because the cancer is not disrupting the normal function of a critical organ.

HOW DOES A TUMOR KILL YOU?

At this point it is appropriate to ask the rather naive question: what is it exactly that a tumor does that causes harm? A woman often first notices she may have breast cancer by discovering a lump in her breast. She does not actually feel ill in any way. On the other hand, a person with cancer being treated with radiation therapy and chemotherapy suffers from a large number of

symptoms that are due to the treatment rather than the cancer itself. Chemotherapy to treat breast cancer leads to cognitive impairment in a dose-response relationship.[43] Cognitive decline appears to be even more strongly related to anti-hormone therapy (such as Tamoxifen) than to chemotherapy.[32,27] One in four cancer survivors is left suffering from long-term debilitating health conditions, and 20 percent of those diagnosed with breast, colorectal or prostate cancer experience pain up to five years following diagnosis.[10] Women with breast cancer are almost twice as likely to succumb to heart failure, and men with prostate cancer have double the risk of osteoporosis. Prostate cancer is also associated with a high risk of incontinence and impotence. Radiation therapy to treat early stage breast cancer on the left side has been shown to increase the patient's risk to heart disease, presumably due to radiation damage to the heart itself.[8] Even surgical removal of the tumor is dangerous. For example, deep vein thrombosis (which can cause a fatal pulmonary embolism) is far more common following cancer surgery than following other surgeries.[12] Why is this?

SULFUR DEFICIENCY IN BLOOD VESSELS

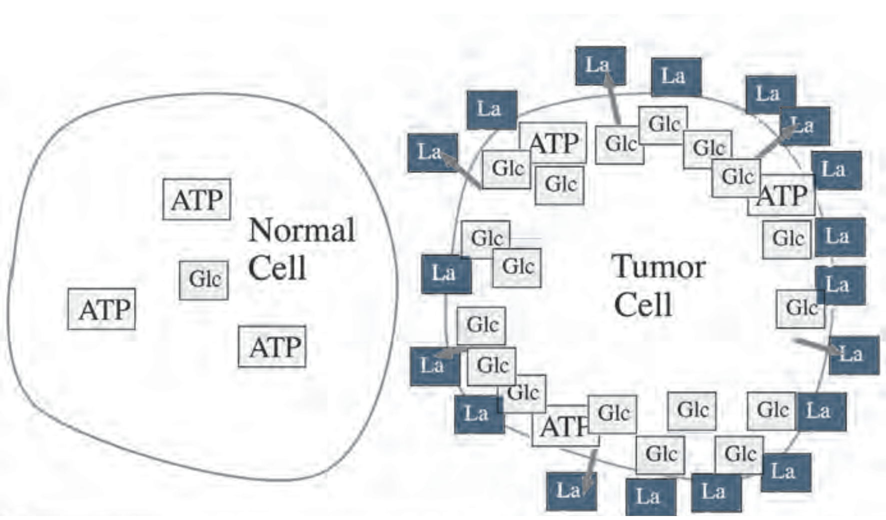
A problem that frequently shows up in terminal cancer is something called "cancer cachexia." This is a muscle wasting disease where the person has little or no appetite and the muscles are broken down to provide fuel to maintain basic minimal function of the vital organs.[20]

Why is there no appetite? How can a lump in a breast cause such a profound effect? While the argument is that the cancer is releasing signals called cytokines that induce a loss of appetite or an inability for the cells to utilize food as an energy source, one has to ponder why it is that these cytokines are released. Is there a reason why the sheer act of eating itself might be dangerous to the cancer patient?

I believe that the inability to metabolize food is due to the sorry state of the vasculature, which, in turn, is due to global, systemic deficiency in sulfate supplies to the vascular walls, to the cells and particles coursing through the blood, and in the tissues. The blood, particularly the hepatic portal vein which delivers digested food from the gut to the liver, is in such a fragile state that it can no longer support nutrient transport. In a 2013 article,[36] my colleagues and I argue that the ability of the heart and skeletal muscles to metabolize glucose depends critically on the bioavailability of cholesterol sulfate, which is supplied through sunlight exposure to the skin. When sulfate supplies are depleted, sugar piles up in the blood, and this can be very destructive to the blood proteins. The result of an overload of nutrients to a fragile vasculature is the forma-

The tumor represents a valiant attempt to solve the real problem and destroying the tumor's ability to do its job leads to deterioration in overall health.

THE STRANGE METABOLISM OF A TUMOR CELL



A normal cell (left) uses its mitochondria to break down glucose (Glc) to carbon dioxide and water, producing ATP, the cell's energy currency. A tumor cell usually has functional mitochondria but chooses not to use them. Instead, it converts glucose to lactate (Lac) which it releases into the medium, and it produces only a tiny amount of energy from each glucose molecule. It therefore requires 18 times as much glucose for the cell to obtain an equivalent amount of ATP, which it produces in the cytoplasm rather than in the mitochondria. It can use this ATP to energize sulfate so that it can be conjugated to a sterol such as estrone (breast cancer) or cholesterol (prostate cancer).

The service the tumor performs is essential to allow the heart and brain to continue to function in their compromised state of severe cholesterol and sulfate deficiency.

tion of blood clots, for example, thrombosis, a life-threatening condition.

The answer I propose, therefore, is simple, but it's extremely provocative. The tumor is not the problem! Furthermore, the tumor represents a valiant attempt to solve the real problem, and destroying the tumor's ability to do its job is going to lead to a deterioration in overall health. Indeed, treated cancer patients are placing a huge burden on healthcare systems due to the many health problems that they acquire following cancer treatment, such as chronic pain, mental confusion, deep vein thrombosis and increased heart disease risk, as I discussed above.

Cancer cells have a very unusual metabolic policy which has been called the "Warburg effect," named after the researcher who first characterized this feature in the 1920s.[21] Ordinarily, when a cell is, for whatever reason, deprived of oxygen, it is capable of reverting to glycolysis as a way of extracting a small amount of energy from glucose by converting it to lactate, and this process does not depend on oxygen. It gets only one-eighteenth as much energy as you would derive if you broke glucose down all the way to carbon dioxide and water using oxidative phosphorylation in the mitochondria. Cancer cells are extraordinary, however, because, even in the presence of abundant oxygen, they refuse to use their mitochondria to produce energy. Instead, they are a powerhouse for taking in glucose—eighteen times as much as a normal cell to obtain equivalent energy—and shipping out lactate. This is the Warburg effect.

Why would cancer cells do this? I have a very simple explanation: the tumor is clearing the excess glucose from the blood and replacing it with an abundance of lactate to provide usable fuel for the critical organs like the heart and the brain. This is one reason why the tumor is part of the solution instead of part of the problem. The service it performs is essential to allow the heart and the brain, in their compromised state of severe cholesterol and sulfate deficiency, to continue to function by utilizing lactate as a source of fuel instead of glucose. But the tumor suffers from glycation damage and acidification as a consequence, so it struggles to survive under such harsh conditions.

The tumor has another more practical reason not to run its mitochondrial engines. Because it is severely deficient in sulfate, it needs to somehow produce sulfate from an available substrate. A promising candidate is homocysteine thiolactone. But, unfortunately, superoxide is required as a source of reactive oxygen to oxidize the sulfur atom in the homocysteine thiolactone. Furthermore, nitrate is needed to offset the kosmotropic effects of sulfate (otherwise, the blood will become too viscous). But the precursor to nitrate, nitric oxide, reacts with the precursor to sulfate, superoxide, to produce a nasty, highly reactive oxidizing agent called peroxynitrite,[26] which will destroy the iron-sulfur containing proteins such as aconitase in the mitochondria.[5] It's really hard to avoid peroxynitrite exposure if a cell is producing both nitric oxide and superoxide. However, it has to produce both of these in order to be able to synthesize sulfate and not gel the blood in the process. A tumor cell is a very good candidate for the job, precisely because it's not performing other essential duties, so it can "take the heat."

This is probably the right place to bring up the critical issue about sulfate—it is vitally important as a component of the complex sugar molecules called glycosaminoglycans (GAGs), which decorate the exterior of just about all the cells in the body.[9] However, it is both difficult to synthesize and difficult to transport. It plays a powerful role in forming an "exclusion zone" around every cell, to keep out unwanted molecules and protect the cell from ion leaks. It does this by inducing the surrounding water to form a crystalline structure that can almost be described as "liquid ice,[28]" something that is very similar to the gelled water in gelatin desserts. This special water-structuring effect of sulfate, while affording protection for the cell when a sulfate anion is attached to its matrix, presents a problem when the sulfate anion is in solution in the blood, because the free-flowing blood cannot afford to be gelled. This is why any free sulfate above about 0.3 mM concentration is immediately excreted through the kidneys. And it also explains why the body can be severely depleted in sulfate even while it is excreting sulfate in the urine. I believe the observation that sulfate is routinely excreted in the urine has misled both researchers and medical practitioners into thinking that sulfate

can't possibly be deficient.

Mitochondria are especially susceptible to damage by peroxynitrite, so a cell trying to synthesize sulfate is much better off if it suppresses mitochondrial activities. This means getting by on oxidative glycolysis to supply its ATP energy needs. Plus, ATP needs to be in the cytoplasm, not in the mitochondria, in order to produce PAPS, an activated, energized form of sulfate that can now be attached to complex sugar molecules being constructed in the cytoplasm in order to refurbish the barren extracellular matrix with heparan sulfate proteoglycans and restore the tumor cell to a healthy state.

HEPARIN SULFATE FROM TUMOR CELLS

Heparan sulfate is a remarkable molecule which is present in abundance just outside most of the cells of the body, attached to membrane-bound proteins called syndecans. It plays an extremely important role in regulating nutrient uptake, signal transduction and ion exchange across the membrane.[4] Sulfate depletion in heparan sulfate is associated with a large number of disease states, including diabetes,[36,38] autism,[37] hypertension,[15] digestive disorders[25] and kidney disease.[40] My colleagues and I have argued that sulfate deficiency, rather than excess cholesterol, is the major factor in heart disease, and that the cardiovascular plaque can be viewed as a factory where cholesterol sulfate is synthesized from precursors derived from LDL and homocysteine.[36]

Breast cancer cells will respond to exposure to estrogen by multiplying, which is why estrogen receptor antagonists such as Tamoxifen have been used as a hormone therapy option to impede their growth.[1] Cancer cells use estrogen to produce estrone sulfate, which they release into the surrounding medium (thereby distributing sulfate to other cells). They also produce lots and lots of heparan sulfate, and, since they produce a sulfatase that detaches sulfate from estrone sulfate,[22] I suspect that estrone sulfate becomes a source of sulfate for the synthesis of heparan sulfate.

Prostate cancer has a story similar to breast cancer with regard to sterol sulfate synthesis, except that the tumor makes cholesterol sulfate instead of estrone sulfate.[11] Both estrone and cholesterol are sterols (estrone, testosterone, and vitamin D_3 are all synthesized from cholesterol). Cholesterol sulfate is the same molecule that is synthesized in the skin upon sunlight exposure. Thus, a plausible way in which sunlight exposure might protect from cancer is by leading to the production of a molecule—cholesterol sulfate—that is sorely needed to maintain the stability of the blood and the general health of the body.

While the tumor cell produces excessive amounts of heparan sulfate, it also produces excessive amounts of heparanase, an enzyme that breaks down heparan sulfate! Tumors that are more aggressive and more likely to metastasize (spread to other tissues) produce more heparanase than more benign tumors.[18,3] Tumors, in fact, produce a continual stream of small vesicles called exosomes, which are pinched off from their plasma membrane and distributed via the vasculature.[41] These contain syndecans bound to heparan sulfate in their membranes, so the tumor cell is delivering heparan sulfate to other cells on the backs of these exosomes! It appears that the tumor is involved in a program of obsessively making and shipping out heparan sulfate chains.

Why would it do this? As astonishing as this may sound, one is tempted to conclude that a tumor cell is altruistic—it is providing a continual stream of fragments of heparan sulfate to the vasculature with the explicit goal of fixing a severe pathology that would otherwise lead to the death of the organism. Or maybe this is not altruism but rather self-preservation. After all, if the blood supply to the tumor fails, the tumor itself will die.

It was at least thirty years ago when researchers first became aware that tumor tissues have a propensity to break down their extracellular matrix.[33] This is not just due to the fact that the cancer cells release heparan-sulfate-containing exosomes as well as enzymes that degrade their surrounding matrix. They are also attacked by enzymes released by the healthy infiltrating stromal cells and by the invasive immune cells. Fragments of the heparan sulfate proteoglycans are broken off, or the protein, syndecan, that the sugar complex is attached to is attacked, or individual sulfate anions are snipped off of the sugar complex.[33] All of these different methods of attack take place. The tumor is basically under siege, and it devotes considerable effort to

The tumor cell can perform a wonderful service by sucking all that sugar out of the blood and replacing it with lactate.

A conscientious effort to spend more time in the sun would yield high payoff in terms of protection not only from cancer but also from many other modern diseases.

replenishing the matrix that is constantly being degraded by enzymatic attack.

Careful examination of the evidence leads to the inevitable conclusion that the tumor is not the problem. In fact, it is the solution! Sugar is piling up in the blood because the cells are unable to utilize it as fuel. This is a direct consequence of insufficient sulfate in the pancreas, leading to an inability to manufacture insulin,[39] and insufficient sulfate in the extracellular matrix of all the cells, leading to insulin resistance.[36] The tumor cell can perform a wonderful service by sucking all that sugar out of the blood and replacing it with lactate. Lactate is a beautiful fuel—its negative charge helps to alleviate blood acidification, and it does not glycate blood proteins, such as hemoglobin and ApoB in LDL, a huge problem with glucose and other blood sugars. And the tumor is producing estrone sulfate and heparan sulfate and releasing them into the blood, supplying the essential nutrients that can restore the blood's stability to prevent blood clots and hemorrhages.

TREATMENT STRATEGIES TARGETING THE CONNECTIVE TISSUES

Researchers argue that the tumor's ability to break down the surrounding connective tissue that holds the cells in place, a process referred to as "matrix remodeling," is a key factor in allowing a tumor cell to "break free," and therefore migrate to some other place in the body. This often has catastrophic consequences, as metastasizing cells can then colonize other organs, and when this occurs the prognosis of death as an outcome is much higher.

Cancers metastasize when the primary tumor sheds cells into the blood, and one way to monitor this is to detect these wandering tumor cells in blood samples.[19] Metastasis is the cause of 90 percent of cancer deaths, and about 25 percent of women diagnosed with breast cancer will go on to develop metastasized cancer. In studies in Europe, some cancer patients have been found to already have disseminated primary tumor cells in their bone marrow even before metastasis has occurred.[19] These cells clearly break away from the main tumor (became dislodged from the matrix of supporting tissues), and their presence in the bone marrow indicates a poorer prognosis.

The breakdown of the matrix metalloproteins is carried out by specific enzymes called "metalloproteinases" (MMPs). There was initially considerable excitement about the possibility of developing drugs to inhibit these MMPs, called MPIs (metalloprotein inhibitors). In fact, new drugs were rushed to phase II trials without adequate prior study. However, the results were so disappointing that the pharmaceutical industry has now more or less given up on this line of attack.

What went wrong? The main problem was an unexpected side effect of severe muscle pain and weakness. This is remarkably similar to the most common side effect of statin drugs. I have previously described how statin drugs force the skeletal muscle cells to take up excessive amounts of fructose that can no longer be metabolized by the liver due to its inability to produce sufficient cholesterol in the presence of statin drugs.[35] The muscle cells also use glycolysis to convert fructose and other sugars into lactate, just like the tumor cells. To the extent that the MPIs interfere with the tumor's function, the muscle cells have to pick up the slack. Only, unlike a tumor, they have another very important role to play, which is to provide mobility. Their intense exposure to glycating agents like fructose causes damage to their proteins, particularly myoglobin, which, like hemoglobin in RBCs, is highly susceptible to glycation damage. This is what leads to muscle pain and weakness, and it can lead to even more dangerous outcomes like rhabdomyolysis—kidney failure due to the exposure of the kidney glomeruli to toxic debris in the form of damaged myoglobin released by dead and dying muscle cells.[16] Indeed, patients with cancer often experience aching muscles and flu-like symptoms in response to cancer treatment programs, and they are at high risk of kidney failure.[17]

Curiously, a novel treatment for cancer has recently been proposed where the "drug" is a sulfated polysaccharide mimetic: essentially imitating the sulfated fragments that are released from tumor tissues through the activity of heparanase and syndecan shedding.[23] The authors conclude with the idea that additional sulfation of this synthetic sugar might further improve its observed effects in reducing angiogenesis (blood

vessel growth) and reducing mechanisms that are essential for metastasis.

A huge question that was left unanswered in the paper is whether these synthetic forms are actually accessible to the endothelial cells lining the vasculature such that they can repair the problem of severe sulfate deficiency that likely necessitated the development of a tumor. If not, then patients treated with these new drugs can expect to suffer from the same side effect profile as that experienced following MPI treatment: severe muscle pain and weakness.

HOW TO PROTECT YOURSELF FROM CANCER

What I conclude from my studies of cancer and its connection to sulfate deficiency is that "watchful waiting" is an excellent policy for breast cancer management, that mammograms are never a good idea, and that the best way to protect yourself from cancer is to optimize for the supply of sulfate to the blood and to the tissues. This means, first and foremost, getting as much sun exposure to the skin as you can manage. In today's lifestyle, it's difficult to allocate enough time to be outside in the sun, and I think a simple conscientious effort to spend more time outdoors would yield high payoff in terms of protection not only from cancer but also from many other modern diseases.

The second cancer-preventative strategy is to choose a diet that will support both sulfate synthesis and sulfate transport. The first part of this is to eat foods that are rich in sulfur. This includes meat, seafood, eggs, milk and milk products, as well as garlic, onions, and cruciferous vegetables.

A second step is to eat foods that contain "sulfate transporters." These include polyphenols and flavonoids, as well as vitamin C and cholesterol. All of these molecules have in common a six-carbon ring and at least one hydroxyl group that can get swapped for a sulfate anion. The carbon ring disperses the negative charge on the sulfate anion and makes it safer for transport without risk of gelling the blood. I believe that the health benefits of buckwheat, ginger, virgin coconut oil, brightly colored fruits and vegetables, resveratrol (in wine) and curcumin (such as turmeric in curry powder) have more to do with the fact that they transport sulfate than the fact that they have antioxidant properties.

Another component of healthy eating is to choose only organic foods to the extent that this is practical. I recently published a paper together with Anthony Samsel which explains how glyphosate, the active ingredient in the most common weedkiller, Roundup, likely disrupts

Glyphosate has been shown to induce proliferation of human cancer cells even when present in a concentration of mere parts per trillion.

STRATEGIES FOR CANCER PROTECTION

Avoid mammograms and follow a strategy of "watchful waiting" if cancer is suspected.

Spend as much time outdoors and in the sun as possible, especially on the seashore; avoid air that is polluted with automobile exhaust.

Eat sulfur-rich foods including meat, seafood, eggs, milk and milk products, as well as garlic, onions, and cruciferous vegetables.

Eat foods that contain "sulfate transporters." These include polyphenols and flavonoids, as well as vitamin C and cholesterol. Buckwheat, ginger, wine, and turmeric contain compounds that transport sulfate.

Choose organic foods as much as possible, especially taking care to avoid foods exposed to the herbicide RoundUp. That means avoiding all genetically modified foods.

Eat fermented foods to provide lactate to the bloodstream.

Minimize exposure to toxic chemicals including those in sunscreens and antiperspirants, cosmetics, hair dyes, and pharmaceutical drugs.

Soak periodically in Epsom salts baths, which are a good source of sulfate.

both sulfate transport and sulfate synthesis.[32] I also published an article about glyphosate in connection with autism in the Fall 2013 issue of this journal. Glyphosate has been shown in *in vitro* experiments to induce proliferation of human cancer cells even when it is present in a concentration of mere parts per trillion.[42]

Obviously, it is imperative to minimize exposure to toxic chemicals. The aluminum in many sunscreens and antiperspirants is a good example. Women who use antiperspirants on a regular basis are at increased risk of breast cancer.[7] Conscious restriction in the use of cosmetics, hair dyes, and pharmaceutical drugs will probably reduce risk to cancer. And it's worth avoiding spending time in places where the air is highly polluted with automobile exhaust, while at the same time optimizing time spent on the seashore, where the air is fresh and sulfur-rich.

Another strategy that would likely be helpful is to soak periodically in Epsom salts baths. Epsom salts are magnesium sulfate crystals, and most people believe that their value lies mainly in their supply of magnesium. But I suspect it's the sulfate that is providing most of the benefit from these baths. If you have access to a natural sulfur hot springs so much the better!

Stephanie Seneff, PhD, is a Senior Research Scientist at MIT's Computer Science and Artificial Intelligence Laboratory. She has a Bachelor's degree from MIT in biology with a minor in food and nutrition, and her PhD from MIT is in computer science. Dr. Seneff is the first author of several recently published papers on theories proposing that dietary deficiencies in critical nutrients such as sulfur, taurine, zinc and choline, as well as insufficient sun exposure, compounded by chronic exposure to environmental toxins can explain many modern diseases/conditions, such as autism, heart disease, obesity, arthritis and Alzheimer's disease. She has also spoken on these topics in several youtube videos as well as in several workshops hosted by the Weston A.Price Foundation.

WISE TRADITIONS 2013 AWARDS BANQUET

Winner of the 2013 Integrity in Science Award, Andrew Wakefield, MD.

Winners of the 2013 Activist Award (left to right) with Sally Fallon Morell: Joette Calabrese, Carolyn Erickson, Catherine Atwood, Judith Mudrak, Liz Reitzig, Mike Mudrak and Vernon Hershberger.

Sheraton Atlanta Executive Chef Marc Suenneman addresses attendees after a delicious banquet dinner. In the background, food coordinators Maureen Diaz and Lydia Rose Sifferlen.

Lydia Rose Sifferlen, chef trained at Three Stone Hearth in Berkeley, California, served as WAPF food coordinator.

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Northern Roots of the Ancient Grains

By Natalia Adarova

The legend of the North is deep and enchanting, wrote famous Russian painter and mystic Nicolas Roerich about northern Russia. “Northern winds are brisk and merry. Northern lakes are wistful. Northern rivers are silvery. Faded forests are sagacious. Green hills are worldly-wise. Grey stones laid in circles are full of magic. We are still looking for the Ancient Rus.”

The word for the Russian North, which sounds like "sever" in Russian, has left its traces in the English language in the old Celtic name (of Slavic origin) *Severina*, meaning “from the north,” and with the adjective “severe,” as an impression of intensely harsh weather. Has this boreal land always been so inhospitable and seemingly disconnected from the world as we know it today? In fact, the word “boreal” is paradoxically rooted in the word “bor,” which means “oak grove” in Russian. The oak is a warm climate-loving tree.

CLIMATE CHANGE

The Earth has experienced several ice ages, with the last ending about ten thousand years ago. During the interglacial periods, Eurasia experienced substantial climate changes. During such warm cycles, median January temperatures of the Russian north reached 32 degrees Fahrenheit, which is comparable to the climate of the present day Northern Italy.

Under such conditions, tundra vanishes, and deciduous forests dominated by oak, elm and linden trees would spread as far as the sixty-fifth parallel north. Magnolia groves would cover the southern regions of Russia. The lands further south would become an inhospitable desert.

Modern predictions that half of the Earth will experience conditions of extreme drought have already happened in the past. In the light of recent global climate warming, which is natural for the interglacial period as the Earth's axis shifts, the retreating permafrost in the Russian north reveals more and more archeological evidence of agriculture's deeply ancient roots.

The commonly accepted date for the first grain cultivation is ten thousand years ago; however, that time frame only holds true for the Near East region. At that point in history, the expanding glacier spread in Eurasia pushed the milder climate to the south and brought that region novel plants and a food called bread.

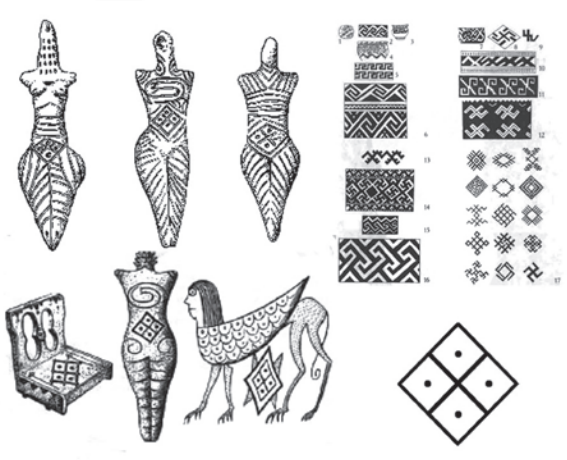
SOWN FIELDS

Grass family grains have been foraged and cultivated in Russia since time immemorial. The sacred ancient Slavic symbol is a "sown field," a diamond-shaped figure filled with dots, which took many complex shapes and forms symbolizing the growing paleolithic philosophy of life and death, the sun and the moon, the movement of time and the change of four seasons connected with agriculture. The sown field symbol can be found on all Russian folk costumes, and household and ritual objects.

Its first primitive forms were found at Kostenka paleolithic camp, along with other ritual objects connected with agriculture. The archeological excavation of this site uncovered a large habitation with eight hearths, a complex central heating system and grain storage pits with wild varieties of rye, barley, oats, wheat and flax. That means grains were already used in a very sophisticated manner some seventy thousand years ago as it is thought that Kostenka camp belongs to that period. In fact, grains have probably been foraged since the dawn of Eurasian man, thought to appear three hundred to four hundred thousand years ago on the Eastern European plain—which interestingly coincides with the warmest interglacial period in the history of Earth.

Grass family grains naturally grow in abundance in the Russian meadows and steppes, and the proximity of these grain fields has always been an important condition for ancient humans' choice a habitat. It is hard to draw a line between foraging and deliberate cultivation as most probably the grain cultivation developed in Russia along the lines of permaculture—as a self-sustained system supported by nature.

How ancient man first learned about grains and the sophisticated art of their cultivation and preparation is a great mystery and the subject of much debate. Ancient Slavs never took credit for this invention, rather, they point out that they were taught to sow and forge metal by a deity named Kola-Ksais who, according to Herodotus, rode the skies in a fly-



Paleolithic ornaments depicting "sown field" designs.

The same "sown field" designs shown in Russian textiles and ornaments thousands of years later.

Russian culture revolves around bread. Endless songs, proverbs and legends are devoted to it as a sacred food.

ing wheeled cart. Kola-Ksais was kind enough to throw the plow down from his vehicle, along with other gadgets for the unassuming peoples of earth.

Interestingly, the words *kolos* (grain head), *koleso* (wheel) and the mysterious but very thoughtful Kola-Ksais all derive from the same root word, and do have a deep connection. The connection becomes even deeper when we learn that Kola-Ksais is the name used by the Greeks, while ancient Slavs called their heavenly patron Svarog. *Svarga* is an old Slavic word for "heaven" and this name is also rooted in the word *svastika*, completing the circle from deity to symbol.

"Sown field" became known as *swastika* (or *svastika*), a symbol now forbidden and so downtrodden by history that it has lost its original deeply sacred meaning, which can be interpreted as "a monotonous flow, movement of heaven" in the old Slavic language.

"What a fresh, unshaken memory!" marveled Gorodtsov, a renowned Russian archeologist, as he compared the skillful swastika embroidery of the northern craftswomen in 1926 to the ornaments of his upper paleolithic findings. "Recently we used to think that swastika is a fruit of the ancient Indian culture and of the decorative border, the meander, found in ancient Greek culture; however that turned out to be incorrect, as there is now documented evidence that swastika, meander and ovum were favorite ornaments of Paleolithic period. . . they were found in Russia on the objects of the Mezin paleolithic camp, which is set many tens of thousands of years back in time."

Gorodtsov died in 1945 fighting the Nazi swastika-turned-ominous, and his Paleolithic swastika works were buried in archives until the collapse of the Soviet Union.

Kolobok, the loaf of bread in the Russian fairy tale.

BREAD IN RUSSIA

Russian culture revolves around bread. Endless songs, proverbs and legends are devoted to it as a sacred food. A loaf of bread named Kolobok even acts as the main character in fairytales—a plot similar to the Gingerbread Man in English tradition.

In modern Russia important guests are still greeted with an ancient ceremony called "bread and salt." Three women in Slavic folk costumes would present a round loaf of bread and salt placed on an embroidered towel (in the past it would be embroidered with swastikas—"sown fields") as a symbol of offering to share the fruits of their labor, along with fertility and wealth; guests would then eat a piece of it to symbolize accepting the generosity of their hosts.

Numerous archaic songs provide evidence that only young unmarried women were responsible for harvesting, storage and preparation of the grain—a division of labor since Paleolithic times. That could explain why "flour" and "torment" are the same words in Russian. Anyone who has tried to make a truly stone-milled flour knows that this is an incredibly difficult physical task, especially for a young female.

With the development of slash-and-burn agriculture, the Russian straw cult came into existence as another cultural phenomenon, again stemming from the ancient agriculture. People worshipped hay as a totem, because they noticed from ancient times that burning hay on the fields yielded more abundant crops. Every year people would burn a straw-stuffed dummy during *Maslenitsa*—a festival week before Lent,

symbolizing victory over the winter frost and the beginning of the new fertile agricultural season.

THE GOODNESS OF REAL BREAD

Modern bread sold at the stores can hardly be called "bread" at all. A quickly risen product of the instant gratification age, made from genetically altered grains in order to yield higher and faster crops, grown in poor soils, stripped of any nutrients and full of harmful additives, it is a far cry from the food that nurtured thousands of generations.

Villagers burn a hay-stuffed dummy during *Maslenitsa*, the week before Lent.

Due to their immobility, plants have developed sophisticated safety measures in the form of various toxins in order avoid being eaten. Whole grain bread touted as very healthy can present serious dangers if not properly prepared, as humans do not produce phytase enzymes that aid in breaking down phytic acid. This organic substance present in all grains, legumes, nuts and seeds blocks the absorption of phosphorus, calcium, magnesium, zinc, iron, copper, silica and even some amino acids. Traditional ferments, however, readily release phytase, as well as other compounds that neutralize anti-nutrients such as lectins and enzyme inhibitors, which is why traditional bread has always been prepared as sourdough.

Preparation of traditional Russian sourdough bread was a complicated art and science. Dough had to be fermented only in oak barrels using a triple leavening process. The dough was considered a living substance, almost a creature, hence during the leavening and baking it was prohibited to curse or act aggressively—an action thought to to negatively affect the rising process.

Russian ovens built by the rules of golden ratio created a special heating environment, giving the Russian bread its inimitable taste and nutritional value.

Sprouting is another technique that reduces phytic acid. Before the invention of the combine harvester, grains stood in the field and sprouted naturally, making it easier to remove them from the stems.

Both of these techniques largely remove the toxic matter out of the grains and greatly boost the nutritional content of the bread. However, even with all these steps some people find grains difficult to digest. One of the problems might be poor gut health in general, as one needs a powerful digestion, a strong gut lining, and a healthy microflora to be able to digest grains efficiently. Before modern times gluten intolerance was unknown, which indicates that gluten itself is not a problem. Plant foods are digested in the gut by the bacteria and if that bacteria are in poor health, problems will arise.

SHARED MICROFLORA

"An apple a day" is the new health recommendation picked up by the Russians, who in ancient times normally reserved apples for cattle and horses in the bad harvest years; the older recommendation was "a glass of kefir a day." Besides genetics, which is an architectural blueprint, the second most important thing we inherit is our parents' shared microflora.

Since ancient times Slavic people considered the abdomen as the epicenter of the mystery of life. The word "abdomen" and "life" are synonyms in the Russian language. They both start with a Cyrillic letter Ж (*zhivot*, meaning "life," "abdomen"), an ancient symbol of the tree of life, which represents the complex paleolithic philosophy of the upper, middle and lower worlds and also reminds us of a human digestive system. In Chinese culture the letter *zhi* portrays the notion

Plant foods are digested in the gut by the bacteria and if that bacteria are in poor health, problems will arise.

of life force or *chi*.

Ancient Slavs knew that gut flora can either be your friend of your foe. They knew that flora could be transferred and could quickly turn pathogenic if handled incorrectly. Kissing strangers was prohibited and has never been used as a greeting. If someone of a different faith happened to eat in the old Orthodox home, the plate, glass and utensils he or she used weren't even washed—they were disposed. Lechery and adultery were outlawed and strictly punished. Enemas are still viewed with suspicion as a rude interference into the human nature—a deeply imprinted collective memory that the human soul resides in the gut.

BUTTER WITH YOUR BREAD

Another old rule for consuming grains was the generous addition of animal fat. "You can not spoil kasha with too much butter" is an old Russian saying, hinting at the importance of this ingredient in grain consumption. Russian sourdough was always consumed with a thick layer of butter, a widespread tradition in other parts of Europe as well. Animal fats lubricate the gut protecting it from fiber damage while maximizing the absorption of fat-soluble nutrients.

GRAIN AND CLAY

The most interesting digestive aid historically used in Russia was clay, considered a sacred food, despite its non-food status. Geophagy—the eating of dirt—still puzzles many people and is considered an eating disorder. In fact, clay might be the earliest human medicine.

In ancient times, grains were stored in grain pits usually dug out in clay-rich soil, and the top of the pit was sealed with clay. Such pits could store grains for almost a century and grains would still be edible after all that time.

Whether it was due to accidental consumption of soiled grains or to sheer instinct (also widespread among animals), ancient varieties of bread were often prepared with clay. Other cultures also used and still use clay in baking. In ancient Rome a recipe for bread called *picentin* called for clay. Traditional Swedish acorn bread preparation also uses clay.

You can still buy edible clay "cookies" in bazaars in Asia Minor and Africa; in fact, Africa is notorious for its clay consumption.

Clay has a tremendous ability to bind toxins, and if there is any toxic matter left after sprouting or leavening, clay will help to usher it out of the body.

Another important aspect of consuming clay is the fact that it is usually very rich is silica. This mineral is now gaining more and more recognition. "No life can exist without silica" proclaimed Vladimir Vernadsky, founder of geochemistry and pioneer of Russian cosmism. Silica is an essential element for proper growth, development and graceful aging. Among its myriad important function, silica plays a crucial role in formation of collagen. Collagen is a substance that forms us and holds us together, and our bodies start to disintegrate due to the rapid loss of silica as we age.

Now when science and religion agree that man was made out of clay, it is especially important to look back and listen to the wisdom of our ancient ancestors.

Natalia Adarova graduated from the Linguistic University of Nizhny Novgorod, Russia and holds a double degree in Linguistics and Journalism. She currently resides in Los Angeles, where she works in the movie industry. Her passion is etymology, culture, history and arts.

ACTIVITIES AT *WISE TRADITIONS 2013*

Sandeep Agarwal, owner of Pure Indian Foods, makers of delicious grass-fed ghee, hosts an exhibit of butter artifacts at *Wise Traditions 2013*. Objects included churns, milk bottles, butter boxes and butter advertisements extolling the virtues of "summer butter."

Katie Hahn and Carlie Wetzel sell raffle tickets for a fishing trip to Alaska with Dave and Barbara Wetzel of Green Pasture Products. The raffle raised about four thousand dollars for the Farm-to-Consumer Legal Defense Fund. Barbara Geatches won!

Lab Report

FATTY ACID ANALYSIS OF GRASS-FED AND GRAIN-FED BEEF TALLOW

By Chris Masterjohn, PhD

At the Burnsides Laboratory at the University of Illinois, Champaign-Urbana, we carried out an analysis of the fatty acids (fat molecules) in grain-fed and grass-fed beef tallow. The sample of grass-fed tallow came from a farm in western Maryland; the grain-fed tallow was purchased in a supermarket in southern Maryland. This research was funded by the Weston A. Price Foundation

To explore the difference in the fatty acid profile between grass-fed and grain-fed beef tallow, we analyzed one sample of each type by gas chromatography, a method used to separate and quantify individual fatty acids. See the table below for the concentrations of specific fatty acids.

The largest differences between the two samples were the total concentrations of polyunsaturated fatty acids (PUFA), and the balance between the omega-3 and omega-6 forms of these fatty acids. Grass-fed tallow had 45 percent less total PUFA, 66 percent less omega-6 linoleic acid, and four times more omega-3 alpha-linolenic acid. The ratio of omega-6 to omega-3 fatty acids was over sixteen for the grain-fed tallow but only 1.4 for the grass-fed tallow. Whatever the ratios, beef tallow is not a rich source of polyunsaturated fatty acids, with only 3.45 percent in grain-fed and 1.9 percent of the total in grass-fed.

Thus, while even grain-fed beef tallow has a much lower content of polyunsaturated fatty acids than modern vegetable oils, the amount found in grass-fed tallow is much lower and similar to that found in the coconut products that dominate the traditional diets of Pacific Islanders, who have been extensively studied and shown to be free of heart disease. This would allow the use of tallow in the context of a mixed diet that includes other foods naturally rich in polyunsaturated fatty acids, such as fatty fish, while still keeping the overall intake of these fatty acids low and similar to that found in successful traditional diets.

Grass-fed beef is often promoted as healthy because of a lower saturated fatty acid content. But saturated stearic acid was 36 percent higher in grass-fed beef (17.45 percent versus 12.8 percent). Levels of sixteen-

FATTY ACID NUMERICAL DESIGNATION	FATTY ACID COMMON NAME	GRAIN-FED	GRASS-FED
		PERCENT OF TOTAL FATTY ACIDS	
14:0	Myristate	4.8	3.45
14:1	Myristoleate	0.85	0.7
15:0		0.8	0.55
16:0	Palmitate	27.7	27.45
t-16:1?		0.5	0.7
16:1	Palmitoleate (may include sapienate)	3.4	2.5
17:0		1.4	1.35
18:0	Stearate	12.8	17.45
t-18:1	Vaccenate	10.8	3.8
18:1n-9	Oleate	30.9	37.55
18:1n-7		1.25	0.85
18:2n-6	Linoleate	3.25	1.1
18:3n-3	Alpha-linolenate	0.2	0.8
20:0	Arachidate	0.05	0.1
Putative Conjugated Linoleic Acid (CLA)		0.25	0.3
20:1	Erruciate	0.2	0.2
20:4n-6 + 22:0	Arachidonate + Behenate	0.1	0.1
	Total SFA	47.65	50.4
	Total MUFA	47.9	46.3
	Total PUFA	3.45	1.9

Abbreviations: SFA, saturated fatty acids; MUFA, monounsaturated fatty acids, PUFA, polyunsaturated fatty acids.

carbon palmitic acid, considered "atherogenic" because in some studies it raises cholesterol levels slightly, were virtually the same in both samples. Thus, in equally fatty cuts of beef, there would be a higher content of saturated fatty acids in the grass-fed beef. In many traditional diets where the fattiest cuts and the fat itself were sought out, intake of these saturates would likely be considerably higher.

Grass-fed tallow also had 65 percent less natural *trans* fatty acids, and 22 percent more of the monounsaturated oleic acid. Differences in other fatty acids were minor. We could not identify conjugated linoleic acid (CLA) conclusively with this method, but we identified a fatty acid that is likely CLA, and its concentrations were identical between the two samples.

In a future issue, we will report the concentration of fat-soluble vitamins in these samples.

COD LIVER OIL SURVEY – PRELIMINARY RESULTS

In April of 2012, we received an anecdotal report from a midwife of several women experiencing severe postpartum hemorrhages while reportedly following the dietary recommendations of the Weston A. Price Foundation. Concerned that the large amount of omega-3 fatty acids found in cod liver oil could have contributed to the hemorrhages through their blood-thinning properties, especially if not balanced by adequate liver, egg yolks, and other sources of arachidonic acid, we conducted a survey to determine whether postpartum hemorrhage and vaginal bleeding during pregnancy were associated with the use of cod liver oil or the dietary recommendations of the foundation. To reduce the risk of bias and increase the amount of information that could be gained from the survey, we circulated the survey widely on the Internet and asked about a large number of foods, perinatal complications, and medications. Over 3,500 women following many different diets completed the survey.

There was no association between the type of diet the women reported following and any of the complications or medications. Women who reported taking cod liver oil were 30 percent more likely to experience postpartum hemorrhage, but the difference was not statistically significant ($P=0.09$), meaning there is a reasonable likelihood the association could be due to chance. Several observations suggest this is unlikely to be a true biological effect: there was no association with the dose of cod liver oil; omega-3 fatty acids are also found in fish oil, but there was no association with the use of fish oil; there was no association between cod liver oil and the risk of vaginal bleeding during pregnancy; and there was no association between cod liver oil and the use of medications used to control bleeding.

By contrast, cod liver oil was associated with a large (63 percent) and statistically significant ($P<0.001$) drop in the risk of preeclampsia, and the magnitude of the drop in risk correlated well with the dose of cod liver oil ($P<0.001$). Since this is an observational study, it cannot demonstrate cause-and-effect relationships, but this association could reflect a protective effect of the fat-soluble vitamins in cod liver oil.

The data gathered from this survey are voluminous and will be reported in much greater detail in the next issue of this journal.

SEVENTH ANNUAL SWISS TRIP

Swiss trip group pictured on Sourdough Bread Day in Erschmatt with (from left to right) Michele Robinson, UK; Melissa Cook, CA; Morag Coyne, Ontario; Dawn Thomas, MI; Rebecca Labarre, WI; Sarah Day, GA; Bus Driver, Christiane Reif, Germany; Adrienne Coyne, Ontario; and Janet Latina, NV.

The Weston Price 7th annual Swiss tour with Judy Mudrak, author of *Milch ist nicht gleich Milch*, (*Not All Milk is Alike*) visited biodynamic and organic farmers, drank horse milk, walked the Loetschental Valley where Dr. Price stayed, made traditional sourdough rye bread, learned about alpine cheese making, learned about wild herbs with an herbalist, made our own salves, saw the beautiful countryside and the Swiss Alps, and backpacked across the country.

For information on the 8th annual Swiss tour, email Judy at reversemydisease@gmail.com.

Farm and Ranch

THE KOANGA INSTITUTE'S EXPERIMENTAL GARDEN

By Kay Baxter

The Koanga Institute (www.koanga.org.nz) sits within a fledgling village based on a community land trust model. Part of our purpose is to create a village self-reliant in food based on Weston Price principles (www.kotarevillage .co.nz). The Koanga Institute also hosts ten-week "Soil, Food and Health" internships, teaching students to grow nutrient-dense food and then how to prepare and cook food based on Weston Price principles, and more (www.koanga.co.nz).

The Koanga Institute has brought together New Zealand's largest collection of New Zealand heritage vegetable seeds (over eight hundred varieties), and a heritage fruit tree and national berries collection of over four hundred varieties, collected over a thirty-year period from the northern bioregion, the warmest bioregion in New Zealand.

The Institute has also become a leading practitioner, researcher and teacher of the connections between soil health, plant and animal health and human health via our many workshops, internships and apprenticeships. We have valued the support and work of the Weston A. Price Foundation so much that supporting the Foundation forms part of our vision statement.

Like many others we have come to the wider realization that we need to address not just the ecology of our food that industrialization has compromised; we also have a broader need to address our "human ecology" by developing regenerative systems in ecology, economy and community. Only then will we continue to co-evolve with nature, the source of our heritage seeds. Thus we are committed to developing a campus to continue our work, and an associated village to support the vision (see www.kotarevillage.org.nz).

Through this, we aim to ensure the long-term sustainability and regeneration of New Zealand's bio-diversity heritage, and to contribute towards transformation in the wider community.

We are building many models here to inspire and support others, including our first two-hundred-square-meter urban model garden, designed to nourish a family of four, providing all the produce and animal products they need. This garden attracts lots of attention and is proving to be an inspiration only six months since it was established.

A WAPF-INSPIRED GARDEN

The goal of the garden is to produce not only fruits and vegetables, but also animal foods that will be sources of the nutrients we can't get in plant foods, such as vitamin B_{12}, D and K_2, and in particular vitamin A and calcium.

Currently we regard the progress of our model as Stage One. It provides only around half the essential daily requirements for calcium and vitamin A. We are looking into how to add elements to this design to bring nutritional levels up to the daily requirements. However it is a process for gardeners to learn to house, manage and feed animals in a safe, healthy, happy way.

We imagine getting this level of nutrition

The goal of the garden is to produce not only fruits and vegetables, but also animal foods that will be sources of the nutrients we can't get in plant foods, such as vitamin B_{12}, D and K_2, and in particular vitamin A and calcium.

THE CHALLENGE

Weston Price found that indigenous people consumed over 12,000 IU of fat-soluble vitamin A and over 1500 mg calcium in their diets on a daily basis. In our experience these are amongst the most difficult elements to get enough of in an industrial diet, as well as in a non-industrial whole foods diet.

Some groups of people he studied ate little or no meat, but large quantities of raw or fermented milk and cream; others ate beans and grain and small amounts of animal products, including insects and dried shrimp and fish.

But no matter what the particulars of the diet, all had high levels of the fat-soluble vitamins A, D and K, as well as calcium. Obtaining these from either the industrial diet or a small garden is the challenge of the modern age.

from two hundred square meters will bring most families' nourishment up significantly. Currently we are providing the animal-based nutrients with rabbits and chickens. We hope to add one or more of the following later:

- Pond or aquaponic system
- Pigeon loft
- One more doe in the rabbit system
- Raising meat chickens over summer on soldier fly larvae and comfrey
- Milking a sheep or goat

All of these decisions will be dependent on many things, but most gardens of this size could incorporate several of these elements, which could bring daily levels of vitamin A and calcium up to the recommended requirements.

It is also entirely possible that required levels could be reached using or buying resources from the environment:

- Seafood
- Raw milk cheese from small dairy farms, which we see emerging on land surrounding towns and cities.

We described our vision to our permacultue design students over four permaculture design courses, and each time the urban design group came up with different and wonderful ideas. Some groups suggested guinea pigs for vitamin A, vitamin D and traditional fat, others suggested snail farms, and one group thought a penned sheep or goat (being fed from the wider area), would be best for for providing calcium and vitamin A. We then did a final design based on the best of all of these ideas, one that we felt was practical, socially acceptable and possible.

MAXIMIZING NUTRIENTS

In this Stage One design we can provide fresh vegtables on a daily basis, year round. We can also provide fresh fruit on a daily basis, and within three years will be able to provide dried fruit out of season. We can provide olive oil and pickled olives for daily use, as well as nuts on a regular basis after about three to five years also.

The nuts, fruit and vegetables will go significantly towards maintaining the health of one family, but we still need vitamin A and more calcium than these items will provide.

We chose rabbits as being the most suitable animals to keep for meat, fat and specifically vitamin A (from their livers), and chickens as providers of high quality fat and vitamins A, D and K. It is the animals in indigenous people's diets that provided the sacred foods containing the fat-soluble vitamins they needed to maintain their health.

Living near the sea allows a regular fishing trip or fish buying or bartering. It is possible in New Zealand to obtain fish heads and fish carcasses for quite a low cost that can add to what we have in the garden. Nutrient-dense foods like pig's heads are also available at a very reasonable cost.

Key nutrients are obtained as follows:

- Vitamin A will come from rabbit livers, but also from occasional chicken livers.
- Recommended levels of vitamin D should be achieved by working in the sun and through eating egg yolks daily and chicken livers and fat occasionally.

THE HARVEST

If you follow the instructions and do a great job of taking care of the soil (see our "Beginner Gardener" booklet), you could expect to get the following harvest from your vegetable garden of 200 square meters over one year:

SUMMER GARDEN

Tomatoes: 40kg
Basil: pick daily for 3 months plus pesto and dry basil for many meals
Cucumber: 30kg
Red Kuri pumpkin: 40kg (20 2kg pumpkins)
Delicata pumpkin: 20kg (60 pumpkins)
Courgettes: 7kg
Lettuce: 100 small hearting plus another 100 in a second planting
Welsh Bunching onions: enough to pick some every day
Sweetcorn: 240 cobs

WINTER GARDEN

Carrots: 80 kg
Beetroot: 80kg
Daikon: 90kg, excellent raw, cooked or fermented, edible leaves
Peas: 1.5kg
Broadbeans (Shellout): 6kg
Silverbeet: 20kg
Cabbage: 20kg
Leeks: 50kg
Broccoli: 20kg, includes eating stems and leaves

- Calcium will come from rabbit bone broth, with more minor amounts from the carcasses of chickens that have finished laying, egg shells, small amounts from nutrient-dense fruit, vegetables and nuts, as well as significant calcium, other essential minerals and hormones from nettle tea and other weeds such as chickweed and cleavers.
- Traditional fats will come mostly from eggs, olives and nuts. Olives, almonds and hazelnuts are a feature in this design to maximize oils and minerals. Nutrient-dense vegetables contain high quality omega-6 and omega-3 oils. Animal fat will come from small animals such as rabbits who store their fat around internal organs rather than in the meat or under the skin, and chickens, who store their fat under the skin. We understand that the quality of feed an animal eats affects and determines the quality of nutrition the animal provides for us. Our rabbits eat no pellets or grains, only high-brix, nutrient-dense greens and roughage. Our chickens also get foods from the garden, along with kitchen scraps.

MAXIMIZING PRODUCTION

The garden is designed for maximum production of highly nutritious vegetables, fruit and nuts all year round:

- We chose heritage varieties of vegetables and fruit to maximize nutrition.
- The fruit trees we have chosen provide a wide range of vitamins and minerals, with fruiting time year round and many products that can be stored. We chose heritage fruit species that are known to contain high levels of nutrition, such as berries and apples, goji and arguta (similar to kiwifruit).
- We practice remineralization of the soil.
- Potential vegetable garden area is maximized by keeping fruit trees vertical, and using all possible vertical and high horizontal spaces (whilst ensuring possible year-round fruit and nuts).
- Maximization of edges and vertical spaces with espaliered and cordoned trees (apples, pears) and vines (grapes, arguta) which allows for maximum length of ripening time, and maximum varieties for different end uses.
- We've chosen fruit trees and almond trees on dwarfing rootstocks to ensure they will not outgrow their spaces.
- For the garden we chose bio-intensively managed beds because this is the most efficient and sustainable strategy for maximum production of nutrient-dense food. (If you are not familiar with bio-intensive gardening or how to grow nutrient-dense food, I suggest you get a copy of our "Koanga Beginner Gardener" booklet and our "How To Grow Nutrient Dense Food" booklet.)
- We have chosen vegetables that crop heavily per square metre (see "Koanga Beginner Gardener" booklet).
- We have chosen a range of vegetables that will ensure there is something every day for a family to eat throughout the year, especially for making wholesome soups, stews, stir fries and salads!
- We include wicking beds on our concreted area. Crops that produce well in these beds include potatoes, peppers eggplants and herbs. (If you Google "wicking beds" you'll find many designs.)
- We have chosen to include some box gardens to grow other crops that suit these beds, to help maximize production/nutrition.
- We'll grow water chestnuts in a bath, kangkong (water spinach) and watercress in a plastic-lined box, kumara (sweet potatoes) in two boxes, and potatoes in two boxes.
- We will include a solar drier to maximize use of all crops. This will allow us to dry soaked nuts, excess fruit, and excess green vegetables (which can be powdered and added to soups and stews). Watch for a Koanga booklet on solar driers in summer 2014.
- We'll have an ability to harvest and store any crops that may be in local parks, waste areas and road sides.
- We will include a small biochar maker to help remineralize the soil by adding biochar to the chicken scratch yard and compost.
- We'll have a Top Bar beehive for honey, pollen and propolis.
- We'll save a significant amount of seed. (See "The Garden Action Plan" in the "Koanga

We understand that the quality of feed an animal eats affects and determines the quality of nutrition the animal provides for us.

Beginner Gardener" booklet, which shows you which crops may be saved easily for seed.)

STRATEGIES & TECHNIQUES

We'll use the following strategies and techniques to achieve production of our animals, fruits and vegetables in a regenerative way. We will have multiple systems in place to produce our own chicken and rabbit feed:

- Dynamic accumulators (comfrey, French sorrel, yarrow, chicory, alfalfa) planted everywhere, including the rabbit tractor path, which is excellent chicken, rabbit, and compost food.
- We will do a bit of foraging from nearby parks and neighbors, especially in the first years.
- Tree prunings from tagasaste (a small, leguminous tree native to New Zealand), legumes and apple trees for rabbit food and compost.
- Chicken scratch yard will be where the compost is made for the garden as a whole and all kitchen waste will go in there for the chickens to turn over. Adding sufficient carbon is important, so it remains aerobic and the chickens can actually turn the heap. The idea is that the chickens can actually live and lay well entirely by eating the decomposers (worms, fly larvae) in the compost, plus green material like comfrey.
- We will collect seaweed as it comes in during storms for the chicken scratch yard.
- We will check out our parks and vacant places around our area and see what possibilities there are for guerrilla planting to the advantage of residents. Nut trees, fruit trees and comfrey could be shared by groups of people. We'll also look at trees and plants that produce biomass for compost making and feeding rabbits and potentially other animals. There may be specific trees that produce seeds that are good food for fattening pigeons, for example.

REMINERALIZATION

Our motto is remineralization for soil, plant, animal and human health! For the whole design to work we need to re-mineralize the soil, so as well as designing in mineral accumulators (as above) there will need to be a focus on finding local sources of minerals, recycling all nutrients, making and using biochar, and bringing in what is missing. A soil test will be done in the beginning and we will buy a refractometer to provide brix readings. It will be critical for anyone doing this to understand that if they have vegetables that aren't nutrient-dense, then feeding these vegetables to their rabbits will simply recycle the deficiencies. The goal must be to produce nutrient-dense plant material to feed themselves and the animals, so those minerals can be recycled through them!

- Recycle all bones through bone ash in the compost.
- Recycle all brown cardboard and clean white paper we can find through the compost or worm farms.
- Collect all leaves we can in autumn from the wider area, as well as neighbors' hedge prunings, which may also be great for feeding rabbits.
- Create a neighborhood project to chip council prunings and either use as wood chips or make biochar. A group could get the council contract to do the local area tree maintenance.
- Harvest seaweed and salt water at any possible time (ideally monthly) to ensure the health of our soil, animals and family.
- Catch fish or barter for fish to increase our calcium, vitamin A and traditional fats and oils intake, and to have more bones to burn to return to the compost.
- Create a forest garden of five or six layers. A major part of the design to re-mineralize the soil and maintain soil fertility lies in designing the garden to have multiple layers as in a forest garden, such as deep rooting herbs, ground cover, legumes, herbaceous woody perennials, low growing shrubs, legumes to three meters, canopy fruit trees in full sun, as well as many mineral accumulators.
- We will invest with our neighbors in a chipper to harvest carbon from urban trees and parks to maintain the mulch for fruit trees and berries, compost carbon for the chickens

But first and foremost we will add more animal products to provide all-important vitamin A and calcium.

and also use as extra feed for the rabbits.

PHASE TWO

We have lots of ideas to pursue once we see that Phase One is working well.

Once this garden is up and running there would be a lot of potential for selling seeds, seedlings and trees grown from cuttings and seed. Another idea is to build a greenhouse on the entire concrete area instead of using that for wicking beds and tubs with plants. It is also easy to see that anybody who is managing such a garden will soon become the teacher in their neighborhood! Another source of income or bartering potential! But first and foremost we will add more animal products to provide all-important vitamin A and calcium.

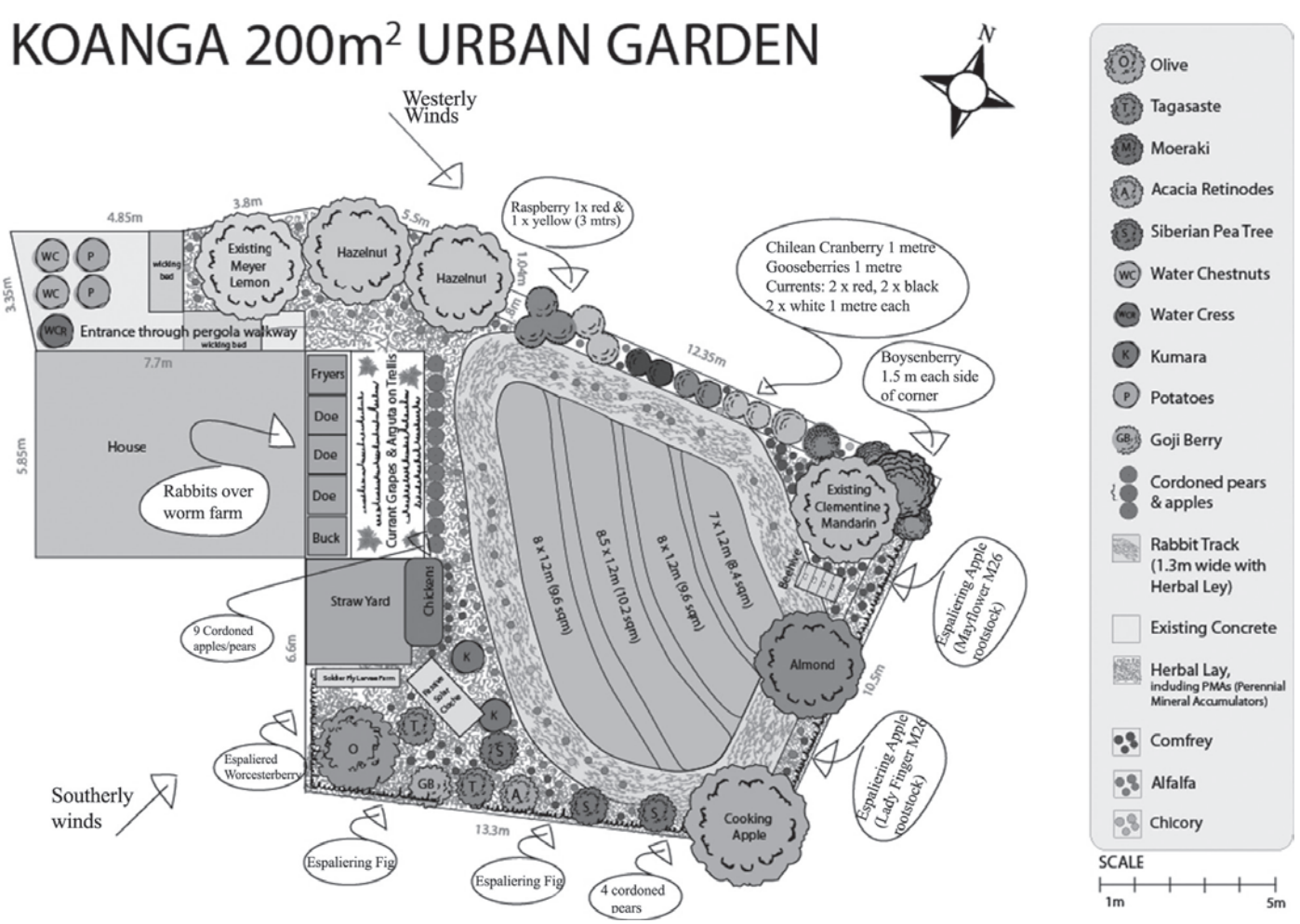
KOANGA URBAN CHICKENS 101

We have one rooster and eight chickens of the Legbar breed. These are egg-producing chickens rather than meat chickens, although they do have good breast meat. We keep them in a deep-litter scratch yard of 2.4 x 2.8m (about 8 x 9 feet), with a fully covered roof and chicken mesh walls (mesh size to keep sparrows out is ideal). The pen holds 50cm deep aerobic carbon-compost materials, which the chickens constantly turn.

The pen has several roosts at varying heights over the compost, a solid south wall to protect the chickens from the wind, two nesting boxes, and a dust bath with wood ash and sand inside under the nesting box, so they can't leave their droppings in it.

Harvey Ussery's book, *The Home Chicken Flock*, is our favorite chicken book, with great information and many ideas for providing non-industrial feed sources. Our goal is to have chickens fed only on decomposers in compost, such as soldier fly larvae from a soldier fly farm and worms from a worm farm under the rabbits, in addition to mineral-accumulating greens such as chicory in winter, comfrey from September to May, and alfalfa, plus many other greens growing in the forest garden surrounding the bio-intensive garden beds.

We are still working on achieving the desired levels of decomposers in the compost heap, plus a compost that can easily be turned by chickens—more experimenting is needed to get the right size carbon sources in there. Perhaps a chipper or mulcher to mulch the tagasaste branches



eaten by rabbits will provide the best possible carbon, plus composted crops from the garden, which will also have to go through the chipper so chickens can turn it easily. In the meantime we are buying organic maize, nixtamalizing it (soaking it in woodash and water for several days) before feeding, to increase the minerals available, for no extra cost.

Red combs show the mineralization level of chickens. The more nutritionally dense food you feed them, the longer their combs will stay red, the longer they will lay, and the higher the egg quality will be.

KOANGA URBAN RABBITS 101

Our goal is to provide one or two rabbits for the kitchen each week, fed solely from food harvested in either the urban garden or from local foraging, with no commercial feed. We will keep two does so each doe will be bred every twelve weeks, leaving plenty of time for recovery and ensuring health and raising large babies that grow fast!

Rabbits are quite particular when it comes to what goes into and leaves their bodies. Because their leafy diets include so much cellulose, rabbits produce two different types of excrement: the first are hard, light-brown droppings (which will be made into mineral-rich vermicast by the worm-farm below); the second are darker, soft pellets or caecotrophs, which the rabbits eat! If you see this, don't be alarmed! Like cows chewing the cud, rabbits re-ingest these droppings to further digest their food and extract as many nutrients as possible. This is how rabbits get their vitamin B_{12}.

Another aspect of their unique digestive system is rabbits' inability to process gas; because they cannot burp or pass gas, gassy foods like grass can make a rabbit very sick and, as a result, we have to watch what they are fed.

Rabbits feed on herbs, forbs, and leafy weeds, and can eat a lot—about one and one-half cups of leafy greens, stalks, and dry material per kilogram of body weight each day, and three times as much when they're pregnant. Our bunnies particularly like clover, plantain, chickory and dandelion leaves; some other rabbit-approved foods include radicchio, endive, silverbeet, raspberry leaves, dandelion flowers, and, occasionally, carrot tops. The darker the better! Light-colored plants have little nutritional value for rabbits and should be avoided.

The following foods are toxic to rabbits, and should *not* be fed to them: brassicas (including cabbage, swede, turnip, kale, broccoli, cauliflower, Brussels sprouts, kohlrabi), amaranth, foxglove, lettuce, lupine, laurel, oak, nuts and seeds, horse chestnuts, poppy, potato (leaves, sprouts, or peels); rhubarb leaves, soybeans or soybean vines and tomato plant parts.

Rabbits, like most animals, are creatures of habit, and if they are not used to something, it may take a while for them to get used to eating it!

In addition to the leafy stuff, we include 50 percent stalky material in each bundle of green feed—plant stems, chickory branches and fruit tree prunings, willow, tagasaste, alfalfa hay, meadow hay, but *not* fruit. Small amounts of certain fruits are okay, like strawberries, apples (though *not* the seeds, which are poisonous to rabbits), pears, cherries, blueberries, grapes and bananas. However, because of its high sugar content, fruit is like junk food for rabbits, and should not be given in large amounts.

We will buy local meadow hay and alfalfa hay rather than pellets containing many dubious ingredients. I suggest if you don't have access to hay or alfalfa hay that you begin with only one doe and get to know your local feed sources and

LAYING HEN MANAGEMENT

MORNING

1. First thing in the morning check chickens' water, clean as often as necessary to keep clear and fresh.
2. Run your eye over each chicken to see that they are active, bright eyed and red combed.
3. On a weekly basis check and fill if necessary the dust bath (sand and wood ash plus diatomaceous earth).
4. Enter chicken yard and fork up a pile of compost so they can turn it over (if they aren't already doing that), getting them used to eating the decomposers, forking in the day's compost and scraps from the house, until they can do it themselves.
5. Throw them a bunch of greens. In summer lots of comfrey from urban garden is great (comfrey is high in protein and low in fiber, and makes excellent chicken feed), plus as much dark green mineral accumulators as possible, including grass, clover, chicory, sorrel, plantain, tagasaste, dock.

AFTERNOON

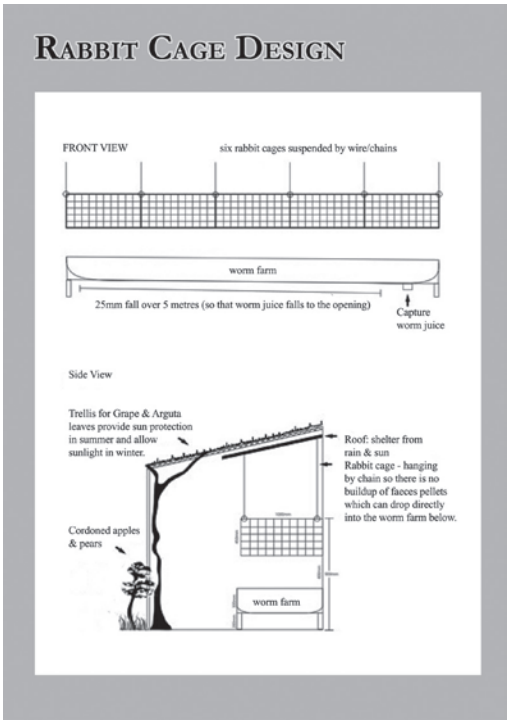
1. Collect eggs, ensure hay is fresh and clean egg boxes.
2. Give them soaked corn and feed as much as they can eat with nothing left over for rats in the night or birds early in the morning, and to encourage compost feeding in morning. Add one tablespoon of chicken minerals to corn at point of feeding to chickens and one tablespoon of seaweed meal whilst building worm and soldier fly systems.
3. Learn to handle chickens to do a monthly check on their health. See instructions in *The Home Chicken Flock* by Harvey Ussery.

build up skills and feed resilience before taking responsibility for more does and babies.

RABBIT CAGE DESIGN

We plan to install five cages across the garden-facing wall of the house, two cages for the does, one cage for the buck, and two cages for the fryers (rabbits weaned young).

The cages will be one meter square, 45cm high so that the rabbits have room to stand up. The mesh size will be no larger than 25mm on the bottom (we will use 19-13mm). This is so that the rabbits do not get sore feet. If it is too large they hurt their feet, if it is too small the feces pellets cannot fall through the holes.



BREEDING STOCK

The New Zealand White is the world's most popular meat rabbit due to gaining weight quickly, with the Californian White a close second due to having a high dress-out weight. Our rabbits are a cross between the two, which is common in New Zealand.

We plan to stagger the production of litters in order to manage the number of baby rabbits more easily. Each doe will produce about forty young each year. One doe at a time will be put into the cage with the buck for mating. (She will get territorial if we put him into her cage.) The nest will go in just prior to birth of the litter or she will ruin it.

Thirty-one days after mating the does give birth to eight to eleven young. It is normal to lose one or two. At two weeks the kits (baby rabbits) open their eyes and leave the nest. The does wean their kits at four weeks, when we will put them into a separate cage. They are now called fryers and can be moved around the rabbit tractor track surrounding the garden. During wet and cold months they will prefer to be in a dry cage. The rabbits are ready for eating at thirteen to sixteen weeks, or a live weight of 2.5kg (about 5.5 pounds). We found that using no grain or industrial pellets, they took a little longer to reach eating size if there wasn't unlimited tagasaste.

We will rebreed the mother four weeks after her previous litter is weaned. We could rebreed five days after birth to step up production but it is preferable for the mother to give her a break.

The plan is to replace all breeding stock at three years. We will swap out breeding mothers with daughters and bring in a new buck.

THE RABBIT TRACTOR

This is a cage that sits on the ground, measuring 1m x 2m. It is moved to a new spot every day so the young rabbits can be in contact with the ground, thereby gaining contact with vitally important micro-organisms. They will also be able to eat the nutritious herbal ground cover consisting of alfalfa, clover and chicory. Yarrow, comfrey and French sorrel will also be available for them to eat.

The rabbit tractor will move in a clockwise direction around the edge of the vegetable garden on a 1.3m track. It has the carrying capacity of about eight rabbits.

BIOCHAR IN THE URBAN GARDEN

Once we discovered that rabbits did so well on locally harvested tagasaste, and we saw how many tagasaste branches we ended up with in a

RABBIT MANAGEMENT

1. Feed as often as necessary to keep some feed in their trays.
2. Fill feeders each evening with brought in meadow hay.
3. In morning feed a mixture of grass, plantain, chicory, clover, dandelion chickweed, puha, comfrey, sorrel, etc., enough to keep them busy until 10 am. This may need topping up mid morning to last until lunch time.
4. Feed either tagasaste or willow or alfalfa hay (brought in) during the afternoon.
5. Check water manually each day to ensure it's running.
6. Rake out droppings in worm farm under rabbit cages daily to ensure even spread.
7. Do a quick check daily for signs of ill health or poor spirits.
8. Clean out cages daily; it is essential cages are kept very clean.
9. When pulling out stripped branches, pile up those ready to put through mulcher.
10. All the loose hay and feed that drops outside of worm farm can be used as mulch for cordoned apples, grape and kiwifruit.

pile as a waste product each week, we saw the opportunity to use a chipper (possibly to be shared with many neighbors) to chip them up, along with neighbors' hedge trimmings and prunings from parks, fruit trees, etc. We could then use the chips as a carbon resource in our chicken straw yard and compost heap. Eventually this would produce high quality humus when mixed with scraps and chicken manure. (Laying hens lay 0.5kg per week, that's over one pound, of manure!)

We also saw that we could use these branches to make biochar. Biochar is essentially finely ground charcoal that is added to the soil. While not biologically active, it hosts and holds much water, minerals and microbes. This biochar also gets added to the chicken scratch yard, and becomes part of our compost heap, subsequently used to build soil on our main urban garden. Adding it to the compost means the biochar will be fully charged before it is added to the garden, and so will not remove minerals from the soil to charge itself once in the bed.

If you'd like to understand more about biochar, and how biochar together with high quality compost grows soil at very fast rates, read *The Biochar Solution* by Albert Bates. The Koanga Institute will be publishing a "Make Your Own Biochar" booklet, around March or April 2014.

We are very proud of our integrated garden, designed to produce the nutrition required by one family, and look forward to continued improvements and efficiencies in the coming years.

Kay Baxter is the CEO of the Koanga Institute, in Wairoa, New Zealand. She is dedicated to providing the principles of nourishing traditional diets, including the fat-soluble vitamins, in the products of a small garden.

RABBIT IN THE KITCHEN

The only parts of a rabbit you should throw out are the intestines, stomach, tail and feet. Here's a breakdown of rabbit parts and some of the ways we can use them:

HEAD: Heads traditionally are used in stews and stocks.

BONES: Like any set of animal bones, rabbit carcasses can be roasted and boiled to make stock and rabbit jus.

HEART: Rabbit hearts and other offal (except the intestines and stomach) can go into stuffings and charcuterie.

LIVER: Rabbit livers have a reputation for tasting mild and clean. Rabbit liver pâté is a perennial favorite, as are deep-fried livers.

KIDNEYS: Poach rabbit kidneys in butter and add the morsels to a ragoût of livers, bacon, shallots, herbs, and sherry vinegar. You also can render the precious fat surrounding the kidneys; just finely grind the fat, slowly heat it, and strain it. The rendered rabbit fat, just like lard, can be used in pastry dough and for frying.

LUNGS: Can go into the stock.

SHOULDER AND HIND LEGS: Our favorite dish is rabbit stew, see below.

BELLY AND SADDLE: The thin rabbit belly is attached to the saddle, a cut of meat that you can debone much like a chicken breast. The saddle also yields two thin rabbit tenderloins; the small pieces of meat tend to get lost in a dish, so it's best to stuff them back into the saddle. You can leave the belly attached; wrap belly around the saddle (and stuff with vegetable fillings) to prevent meat from drying out. Common saddle preparations include roasting and frying.

RIB RACK: Compared to beef or pork ribs, rabbit rib racks come in a "Barbie-sized" portion, but they are still good on the BBQ and then the bones into broth.

RABBIT STEW from *Change of Heart* by Kay Baxter

1 large rabbit, cut into pieces
8 slices of bacon, cut into small pieces
1 onion, finely chopped
1 bouquet garni
3 cloves garlic, sliced
12 small new potatoes
3 tablespoons lard, tallow or coconut oil
1 cup red wine

Sear rabbit pieces in lard, remove from pan. Add garlic, onion and bouquet garni, and sauté 3 minutes. Add bacon, sauté 5 minutes, return rabbit, add red wine and 3 cups water. Place a lid on dish and simmer gently for 1 1/2 hours or until very tender. Add potatoes and continue simmering until cooked.

Technology as Servant

THE CLOTHING CONUNDRUM: SAFE, WARM WINTER DRESSING

By John Moody

Clothing serves a number of important practical purposes. It helps moderate our exposure to the environment. It can protect our skin from injury and attack from abrasions, bugs, bites, cuts, scratches, sun and harsh weather. It serves almost as a second skin in this regard, providing a much needed layer of protection. Clothing can also become a source of play and fun for anyone at any age: a way we express our personality and identify with others.

Why do clothes matter so much?

Your skin is your body's largest organ. Averaging twenty-two square feet in surface area and eight pounds for the average adult, the skin serves as our body's first line of defense against a host of dangers. The body also uses our skin as an important pathway to eliminate certain toxins, but at the same time, it thus also becomes an easy way of access for many toxins to gain entry into our body.[1] This entry pathway may be even more dangerous than others, such as inhalation or ingestion, since toxins that enter through the skin bypass the digestive and respiratory tracks and the defenses these systems employ.

For instance, studies have shown that our skin possibly absorbs more chlorine in a five to ten minute hot shower than in drinking five to ten glasses of chlorinated water! When you use personal care products (make-up, deodorants, etc.), the chemicals in those products can show up in the bloodstream less than sixty seconds after being applied to the skin.

A 2008 study by the Environmental Working Group looked at twenty teenage girls and found sixteen chemicals with potentially harmful health effects in blood and urine samples from their personal care products.[2]

Yet while a lot of people are careful with what they put in their body by way of food and drink, many are careless with what they put on it by way of clothes.

Many modern fabrics are problematic in a number of ways. First, many are made from, produced with, or contain a plethora of hazardous chemicals, from flame retardants (generally bromated chemicals) to those wonderful sounding but not-so-safe stain repellants and wrinkle-free clothing treatments (which contain perfluorinated chemicals—PFCs—like Teflon).

The astute reader will notice that the two main chemicals used to "improve" modern clothing are both from the halogen family, the same as chlorine and all-important iodine. Thus, combined with the average person's exposure to chlorinated and fluoridated water, the production of clothes thrice exposes us to dangerous toxins: first in the disposal of waste from production that pollutes earth and water, second during wear and use, and last, as we launder these clothes more toxins are washed out into our precious water supply.

Second, many modern synthetic fabrics cause skin irritation and don't allow our skin to breathe properly, though some natural choices, like silk, may also present this problem for some. Last, many of these fabrics pose a little known environmental problem of contributing to plastic pollution of our precious water supplies. (See side bar on next page.)

TRADITIONAL FIBERS

Wool goes way back in human history as a versatile and dependable fiber for clothing. The big drawback is that sheep's wool can be scratchy and irritating. But that can be circumvented, as wool excels in many non-direct skin applications, such as pillow stuffing and linings to make clothing warmer in multi-fiber pieces. If the wool will be in direct skin contact, choose wool from Merino sheep, which when properly handled is enjoyably soft against the skin. Wool from the Angora rabbit is also soft, very warm

Many modern fabrics are made from, produced with, or contain a plethora of hazardous chemicals.

and lustrous, as is mohair, which is wool from the similarly named Angora goat. Cashmere, another luxury fiber, is from yet another species of fine-haired goat.

Alpaca is also a traditional fiber, from llama-like animals of the camel family that live at high altitudes in the Andes. Alpaca fiber is becoming more widely available in the U.S. over the past decade or so. It is luxuriously soft, warm, insulating and non-irritating, but very expensive.

Archaeological records point to hemp being the earliest non-animal-based fiber that people employed to make clothing. In colonial America, farmers were required to grow hemp by law. It was also used in the nation's first paper mills, preserving timber for more important and suitable purposes. Hemp is four times more water absorbent and durable than cotton, and softer than most wools. Moreover, it is easy to grow because it is pest and weed resistant, both big plusses for farmers and the environment, further reducing the environmental burden of hemp products compared to alternatives.

Sadly, what once was a staple, profitable and safe crop to grow was banned because of the war on drugs, even though hemp for clothing and twine is completely different from marijuana. The hemp ban was a boon to the industrial cotton and synthetic fabric industries as an easy avenue to remove their main competitor and alternative in the market. Thankfully, my home state of Kentucky and many others have made good progress towards getting the government out of hemp, and you can help by contacting your elected officials wherever you live.

Linen is one of the oldest plant-based fiber sources, followed a few thousand years later by cotton. It is a smooth, soft fabric, but does not take to creasing or folding well, which breaks the fibers, and it also dislikes tumble drying. Yet it is naturally resistant to moths, dirt and stains and absorbs water without feeling wet or damp. It wrinkles easily, which some consider part of the charm of the fabric.

As for modern cotton production, if you think GMO foods are bad, GMO cotton is in many ways even worse. Occupying roughly 2.5 percent of the world's cultivated land, it accounts for 16 percent of the world's insecticide use, and those used are generally considered some of the worst and most dangerous. Also, to grow a single pound of conventional cotton requires around a third of a pound of synthetic fertilizers.

Many clothing companies are now using organic cotton that is naturally dyed. Because synthetic fabric dying uses large amounts of water, choosing such naturally dyed clothing has substantial benefits. Be aware that some companies do use small amounts of synthetic fabrics mixed with organic options.

FROM HEAD TO TOE

With winter upon us, how can we keep warm naturally in style, comfort and safety?

For head gear look for wool, hemp and alpaca. Many small, fair trade stores carry handmade winter caps made from 100 percent alpaca.

For really cold weather, I have found nothing that compares with a merino wool base layer (the modern equivalent of thermal underwear/long johns). With a sweater and jeans and my base layer underneath, I can venture outside in sub-freezing temperatures with my trusty alpaca hat, gloves, and wool socks, for farm chores or taking a walk around the farm.

Minus33 makes a full line of merino wool

SYNTHETIC FABRICS: DOUBLY DANGEROUS

Many people avoid modern synthetic fabrics because of allergy, production methods, chemical contamination and other issues. But such fabrics also pose a unique, albeit little known, environmental danger. A study published in the November 1, 2011 issue of *Environmental Science & Technology*, showed that with every washing, many of these synthetic fabrics create large amounts of water-contaminating micro-plastics:

"Microscopic fragments of acrylic, polyethylene, polypropylene, polyamide, and polyester have been discovered in increasing quantities across the northeast Atlantic, as well as on beaches in Britain, Singapore, and India, says Mark Browne, an ecologist at University College Dublin and the paper's lead author. Browne and his colleagues from the University of Sydney in Australia, the Universities of Plymouth and Exeter in the United Kingdom, and Waters in Canada sampled eighteen sites representing shorelines in six continents to track down a possible source of the contamination.

"By separating the plastic from the sand and chemically analyzing them, the researchers discovered that nearly 80 percent of the filaments were either polyester or acrylic, both of which are common in synthetic textiles. No single beach was devoid of the colorful lint. Each cup of sand had at least two fibers and as many as thirty-one. The most-contaminated samples also originated from areas with the highest human population density, suggesting a pathway to the ocean through sewage. Samples of treated wastewater and sewage-tainted ocean sediment confirmed the scientists' suspicions."[3]

Thus, even if certain synthetic fabrics are relatively safe for some people's skin, they are not safe for our water supply, especially our oceans and the marine web that provides us with such nutritious and needed foods.

"Nearly two thousand polyester fibers can float away, unseen, from a single fleece sweater in one wash cycle, a new study reports. That synthetic lint likely makes its way through sewage treatment systems and into oceans around the world."[3]

gear, as do companies like Patagonia, among others. European sources of organic merino wool include Hocosa of Switzerland (danishwool.com/shop/hocosa-switzerland) and Ruskovilla Woolens. These sources also include very versatile and warm blends of 70 percent wool with 30 percent silk undergarments for all members of the family. I recommend a mid-weight base layer for most people in most climates (in Kentucky, the heavy weight base layer would be excessive most years) and the balaclava mask for really cold, windy, wintry weather.

My wife equally loves her set of woolen underwear, albeit she treats them more like pajamas than work wear. They are not only extremely temperature stable, but immensely comfortable for both work and lounging around by the wood stove on the long, dark, cold days of winter.

For a medium weight jacket, I have fallen in love with L.L. Bean's 100 percent merino wool hoodie. The beauty of wool includes such practical benefits as being naturally antibacterial, naturally anti-smelly, soil and water repellent, and cozily comforting.

Few companies have done as much to bring organic cotton clothing to the masses as Maggie's Functional Organics. They also sell wool socks that I enjoy immensely. I have to admit, I am terribly hard on socks (ask my wife). I have found Maggie's to be both functional and durable.

NOW I LAY ME DOWN TO SLEEP

The average person spends seven to nine hours a night in bed. Don't underestimate the importance of your bed! While good quality pillows are extremely expensive (especially for a larger family), they are not too difficult to make. Near Sea Naturals and a number of other companies sell organic cotton and other organic fabrics, including a wide variety that is perfect for pillows, pillow cases, and bedding. My amazing wife sewed up some pillow cases, and I secured some free wool from a local farmer to use as stuffing, along with buckwheat hulls. She put zippers on the pillows so that when needed, we can freshen the wool stuffing or change it out as needed. Organic bedding is also becoming more widely available, even at mainstream stores like Target!

COST CONSIDERATIONS

Good clothing, like good food, costs more than its conventional counterparts. The real question is how to afford both. For our family, we have a number of strategies. First, for our kids, we swap, trade and save with other members of our buying club. We also employ a two-clothing system strategy: we have "indoor" clothes and "outdoor" clothes. Second, we shop sales and use other avenues to access organic clothes that save us significant money. We hope to see the buying club branch out into this important area of products for members, both by encouraging members to create clothing and bedding items for other members to purchase, and by working with smaller companies to make their products more affordable and accessible.

For instance, Frontier Co-op carries Maggie's Functional Organics line of clothing and is a distributor with which any buying club can easily establish a wholesale account. Frontier's wholesale pricing is as much as 50 percent off retail, and on top of that Frontier's member sales can add a further 10 to 25 percent off wholesale pricing. Thus, I have organic wool socks for seven dollars that run twenty dollars at local stores and online.

If we are going to buy conventional cotton clothing, we thrift shop, so that the clothes have been laundered and possible pesticide residues at least partially removed and broken down. Why pay full price for a chemical bath? When we get the clothes home, they get a double to triple washing before use to remove additional contaminants, including whatever laundry solutions were used on the clothes. You can toss a little zeolite into your machine to help absorb such contaminants. Lengthy sun and wind airing will also be a great help.

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SELECT YOUR FIBERS AND FABRICS WITH CARE

Best materials for clothing include organic cotton clothing, especially ones that use natural vegetable or earth dyes; hemp clothing; wool; silk; linen; and similar natural fabrics, from unbleached and minimally processed fibers.

Good choices include conventional cotton and other natural fabric clothing, especially already used.

Avoid synthetic fabrics, especially those that are known to shed badly when washed. The most important synthetic fabrics to avoid include acrylic, polyester, acetate, triacetate and nylon, and the semi-synthetic rayon (which is manufactured from wood cellulose) as well.

Also avoid anything—synthetic, natural, or organic—that is labeled static-resistant, wrinkle-resistant, permanent-press, no-iron, stain-proof, or moth-repellant, or that is treated with flame retardants.

Homeopathy Journal

MY DAD AND THE DEAD CARDIOLOGISTS: HOW DAD OUTLIVES THEM ALL WITH HOMEOPATHY

By Joette Calabrese, HMC, CCH, RSHom (NA)

I put responsibility for my health care completely in my own hands. And the only way I or anyone can take this stance with such fervor is to know, down to our very cells, what we actually believe.

I put my faith in a nutrient-dense diet and in homeopathy. This doesn't mean I will never place a toe in the conventional medical arena. But that toe will be positioned there for mere moments for the sake of a diagnosis or to set a broken bone. That's enough for me! I'll slip from the sterilized mitts to return to my trusted homeopathy. Indeed, do I have confidence in my craft or not? Not blind faith, but robust, wholehearted trust in the data and clinical observations my colleagues and I have made in our professional and personal lives.

Take my father, for example. He hails from an Italian-American family and was the second youngest of seventeen children. All except two of his siblings, as well as his parents, died before the age of 76.

Over the last years, my father and I have cooperatively gotten him off all heart medications and kept him out of doctors' offices. In a few months he will be 87. So far, so good.

If these fallen medical men had been living according to their own counsel, then their advice would be at best specious, and more likely deadly.

Here are the details of his story. At the age of 62 my father had the first of two myocardial infarctions. He had also been suffering tachycardia (rapid heart beat) for months before the incident. At the time of this episode his total cholesterol was a skimpy 112. For years, he had followed the *Fit for Life* diet: lowfat and vegan.

Leading up to and including the 1980s my father was fully cemented in the conventional medical cardiac treatment protocol. He was dutifully compliant with his doctors in every way: he continued the lowfat diet, daily baby aspirin, Lipitor, nitroglycerin, calcium channel and beta blockers, and two more blood pressure meds. Nary a missed drug nor appointment.

But his doctors didn't always show up for their scheduled appointments. Something began to happen to his cardiologists. One by one, each died over a period of fifteen years. The grand total was *six* cardiologist deaths with only one of them to survive beyond his seventieth birthday! If these fallen medical men had been living according to their own counsel, swallowing their prescribed nostrums, and eating per their recommended regimes, then their advice would be at best specious, and more likely deadly.

Two years after his first infarction my father suffered another attack and more drugs were added to his treatment protocol. But just before the last cardiologist died, he warned our family that if my father did not undergo bypass heart surgery, he'd not make it to his next birthday.

That cardiologist's surgical plan sounded more like highway construction than something done to a human body. He artfully planned to connect Route 33, which was partially blocked, to the New York State Thruway through my father's leg, splice and redirect several more vascular roadways, and of course require the mandatory stop at the toll booth to pay. When I finally shook off my flabbergastion my first coherent thought was to consider the unconsidered. I said, "Dad, let's get out of here." My father gave it about an hour's deliberation and then decided he'd take the detour and forgo surgery, thank you very much.

Before my father reached his seventy-first year, that cardiologist died, too!

TIME FOR A REAL DETOUR

After years of conforming to the conventional medical canon along with mounting side effects from the drugs he took, my father allowed me to convince him to consider another way: homeopathy.

It took time to persuade him to rely completely upon the homeopathic methods as well as a modified WAPF-styled diet, which turned out to be both a safe choice and a triumphant one.

If you knew my father you'd understand that he doesn't move quickly to alter dietary habits, so this remains a work in progress. We began with butter first, then coconut oil. Today he makes dinner for himself and my mother with these two saturated fats in every meal and he makes his own raw milk yogurt on a weekly basis. I must confide that getting him off commercial bread was a trial only a devoted daughter could endure.

As for the drugs, the aspirin was the first to go. No persuasion was needed, since it had caused him gastrointestinal burning that he had simply put up with.

In practicing homeopathy we don't recommend that people heedlessly eliminate their drugs. Instead, we allow them to live with the newfound benefits of the homeopathic remedies for some time. This method allows the remedy to take up the slack so that the body no longer requires drugs in order to function.

Once we observe this shift, the client is encouraged to see his doctor for help in getting off medication. However, doctors are not trained to get patients off drugs, only on how to get them on. In my father's case, we skipped this step. Another detour!

Early on, during the period of physician-directed choices, and unaware that his doctor knew nothing of homeopathy, my father asked his MD's opinion on using *Arnica montana* in place of aspirin. The doctor sniffed, "You can't use those methods without taking risks. What are you hoping to accomplish? I take aspirin daily myself." That doctor died five years later.

It's a little hard not to be smug. And so, it wasn't long before we made a conscious decision to leave the conventional doctors out of our loop. It only caused undue stress on my father to argue with someone who had no understanding of drug-free methods, nor of proper nutrient-dense diets. Instead, my father simply began taking *Arnica montana* 6x twice daily and within several months he was done with aspirin.

Since making this decision we have observed that when my father inadvertently cuts himself he doesn't bleed heavily as he once did. This is reassuring, since a more sobering injury or surgery could have potentially resulted in hemorrhage. On a daily note, he no longer complains of chronic burning stomach, indigestion and constipation. The telltale ecchymosis, euphemistically called black and blue spots, disappeared.

Another daunting symptom my father experienced through the years was angina, which accompanied even the smallest of activities. Walking to the mailbox left him in an anguished state because of pain and breathlessness. *Arnica montana* brought this complaint down to a mild purr, but *Magnesium phosphoricum* (*Mag phos*) 6x settled it completely. Instead of keeping nitro-

Doctors are not trained to get patients off drugs, only on how to get them on.

THE SCHEDULE OF REMEDIES

It would be irresponsible of me to suggest that the protocol I devised for my father is indicated for everyone suffering from heart conditions, so this is where I must state that each cardiac case presents different settings, hence somewhat diverse remedies. Cardiac homeopathic choices are numerous, and I didn't come to the following schedule without trials of other remedy considerations over time. Since I know I'll be receiving emails and calls on precisely what we used, below is the schedule on which I've settled for the last many years.

While items one through four below have been included in my dad's schedule for years, items five through seven have been adjusted according to symptoms as they presented. I might add that the longer my father has been on this plan, the more infrequently certain remedies are needed. In spite of his age, he grows towards more vigorous health. This is not something you hear in conventional medical arenas, which routinely blame the patient's age for the lack of response.

1. *Arnica montana* 3 or 6x, twice daily
2. *Magnesium phosphoricum* 6x, twice daily
3. *Crataegus Q*, 5 drops, twice daily
4. *Secale cornutum* 30, twice daily
5. *Digitalis 30*, twice daily
6. *Aurum arsenicum* 200, every 30 minutes in an emergency, followed by twice daily for months until the emergent setting clears
7. *Arnica montana* 200, every 30 minutes alternating with *Aurum arsenicum* 200 in cardiac emergency.

Poisons make the best homeopathic remedies because when highly diluted and potentized they become powerful medicines.

glycerin in his shirt pocket, he tucked in a small bottle of *Mag phos* 6x and popped a few pills into his mouth as needed. After a few months, the need for this remedy was eradicated and Dad stopped carrying it with him. *Mag phos* 6x cured his angina.

However, there still remained his cardiac dysrhythmia (irregular heart beat). His cardiologist, the one who died first, told him that dysrhythmia often ushers in cardiac arrest and is incurable. Naturally this symptom therefore carried the greatest fear factor for my father. *Digitalis* 30c became our remedy of choice, and this too can be used daily for many months, or years if need be. However, the dysrhythmia is likely to resolve in a much shorter amount of time if this powerhouse of a remedy is employed.

Dr. A.L. Blackwood in *Diseases of the Heart* says of homeopathic *Digitalis:* "It not only relieves the palpitation but also diminishes and arrests the nightly emissions that so frequently accompany it." *Digitalis* has a place even in conventional medical settings, but in that arena it is used in gross form. Unfortunately, as with aspirin, when a substance is used in material structure (as opposed to homeopathic dilution) it frequently causes side effects. In fact, the more "effective" a drug is in suppressing symptoms, the more likely it is to cause damaging side effects. In the original, gross form before it is made into a homeopathic remedy, *Digitalis* is a poisonous plant, the foxglove. Poisonous substances ultimately make the best homeopathic remedies, because when highly diluted and potentized, they become powerful medicines. The drug industry uses the original plant to formulate a synthetic version in the manufacture of the prescription drug called Digoxin. The difference between this synthetic version and the homeopathic is like the difference between aspartame and raw honey.

For arterial sclerosis, we count on *Arnica montana*, but another remedy is required to be certain that blockage is not imminent: *Secale cornutum* (ergot). In his *Desktop Guide to Homeopathy*, Dr. Roger Morrison points out the following: "*Secale cornutum* acts mainly on the

CARDIAC BENEFITS OF *ARNICA MONTANA* VERSUS ASPIRIN

Arnica montana is one of our leading homeopathic remedies for the heart, particularly in relation to blood and arteries. As Frans Vermeulen states in his *Concordant of Materia Medica*, *Arnica* has the ability to resolve the following symptoms: "Angina pectoris, stitches in the heart, pulse feeble and irregular, cardiac dropsy, palpitations after any exertion, pressure under the sternum, anguish, collapse, beats shake the whole body." Also, "Feeble debilitated patients with impoverished blood. Cardiac dropsy and dyspnoea. Marked effect on the blood, affects the venous system." The very symptoms my father suffered at the time of his cardiac event are fully covered by *Arnica montana*.

This medical book is a compendium of excerpts from the writings and clinical experience of Drs. Boericke, Phatak, Boger, Lippe, Allen, Pulford, Cowperthwaite, Kent, Clark, and Vermeulen. Also, Dr. S.R. Phatak in *Materia Medica of Homeopathic Medicines* relays the pathologies that *Arnica montana* can address: "Ecchymoses and haemorrhages. Relaxed blood vessels with tendency to haemorrhage, epistaxis."

For five years, I studied under the homeopathic physician Dr. A.U. Ramakrishnan, who is the medical physician to the president of India. In his hospital in India, he and his colleagues eschew daily aspirin for cardiac patients and instead prescribe *Arnica montana* 6x. Over the years, my client-students who have elected to use *Arnica montana* 6x report that this simple change has made a remarkable shift in their well being.

If you are unfamiliar with the harms associated with aspirin use, consider the Mayo Clinic's website, www.mayoclinic.com/health/daily-aspirin-therapy/HB00073/NSECTIONGROUP=2, which reports: "Stroke may be caused by a burst blood vessel. While daily aspirin can help prevent a clot-related stroke, it may increase your risk of a bleeding stroke (hemorrhagic stroke)."

In the *New York Times* article, "A Hidden Danger of an Aspirin a Day" (consults.blogs.nytimes.com/2010/02/01/a-hidden-danger-of-an-aspirin-a-day/?_r=0), Dr. Neena S. Abraham, a gastroenterologist at the Michael E. DeBakey V.A. Medical Center says: "If your physician has suggested you take aspirin to reduce your risk of heart disease, it is important to remember that even small doses of daily aspirin—including 'baby aspirin,' at a dose of 81 milligrams daily—can increase your risk of ulcers and bleeding. It is important to remember that all aspirin has the potential to damage the tissue of the gastrointestinal tract. Damage can occur anywhere, from mouth to anus."

Thus, not only will *Arnica montana* address the integrity of the blood, but it shores up the vessels. In that light, aspirin appears to be the wrong drug choice altogether, particularly when the vessels break more easily with its use. My father

circulation. Allopathically, ergotamines are used for their (primary) vasoconstrictive properties; homeopathically, *Secale* is used for circulatory imbalances."

In my father's case, we also occasionally counted on *Aurum metallicum* 200, which is especially valuable when heart disease is accompanied by depression. This remedy has a reputation for resolving the cardiac event as well as depression.

Aurum arsenicum 200 is the remedy of choice at the critical time of cardiac arrest and in general for arterial sclerosis. Dr. Ramakrishnan reports that he has used this on thousands of patients. My father has counted on it when he has gone into tachycardia, with severe pressure and pain radiating down his right arm. After two doses of this miraculous remedy, the pain and heart flipping halts. So does the accompanying anxiety. He has used this powerhouse medicine for such acute situations as well as chronic conditions. After such events, my father counted on *Aurum arsenicum* 200 to keep this event from recurring. That was over four years ago and he has not had a recurrence.

I also include the tincture, *Crataegus oxyacantha* (hawthorn), as part of his daily routine. It has a history of addressing hypertension and most important, as per *Concordant Materia Medica*, "[has] a solvent power upon crustaceous and calcareous deposits in arteries. Tincture, one to fifteen drops; must be used for some time in order to obtain good results."

CONSIDER THE UNCONSIDERED

How many times did my father hear that the only way to treat heart disease was to submit to surgery, take drugs for life, and abstain from saturated fats? These doctors overtly stated that there was no way to save his health other than to acquiesce and accept lowered expectations for his quality of life.

But for you and me, lowered expectations are the least rational response! It only makes sense if we wish to cede control of our lives to the opinions of others. When it comes to chronic illness such as heart disease the model of modern medicine offers unreliable solutions that can usually be circumvented with intelligent alternatives.

If my father and I flatly refuse procedures and drugs of commerce, are we thrusting our heads in the sand? Certainly not! For I have as much sure confidence in my medicines as does a conventional doctor who depends on his drugs.

One doctor I didn't count in my previous tally was a close friend of my father's and a world famous professor of cardiology. He once said to our family, "The way to have good health is to get yourself a scary disease, then learn how to bring yourself back to health." That is how my father and I approached his illness.

If we believe that we should be personally responsible for our health, and when we depend on ourselves we discover that we are stronger, more successful, and take greater pride in ourselves and our work, then we make positive contributions to society. When you cure a family member, there is profound gratification not only in the joy of watching his or her suffering melt away, but in the blush of accomplishment.

I want the heady experience of serving someone most dear to me. If that means I'm a rebel then I'll accept that label. Just don't stand in the way of my helping my father.

Joette Calabrese, HMC, CCH,RSHom(Na) is a homeopath who melds homeopathy with WAPF principles. She meets with folks on SKYPE to help them return to health via these methods. She also teaches families how to raise a drug free family in her virtual classroom in her popular webinars, books and CDs. She is an expert presenter at WAPF conferences and throughout the U.S. To learn more about how homeopathy can fit your lifestyle, contact 716.941.1045 or www.Joette Calabrese.com for a free 15 minute conversation with Joette.

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When it comes to chronic illness such as heart disease the unreliable solutions of modern medicine can usually be circumvented with intelligent alternatives.

All Thumbs Book Reviews

Use Your Brain to Change Your Age: Secrets to Look, Feel, and Think Younger Every Day
By Daniel G. Amen, MD
Crown Archetype, New York 2013

You may have seen Dr. Daniel Amen, the controversial integrative psychiatrist, who got his medical degree from the Oral Roberts University School of Medicine, on the PBS channel doing pull-ups on an overhead bar, embracing his younger wife, and talking about his many books on the brain. His presentations have been aired thousands of times all over the country in connection with major fund-raising. His PBS presentations are available on his website, amenclinics.com. He has also been featured on "Dr. Phil," Larry King, "The View," and other programs. In contrast to the general "bad rep" of psychiatry in this country, Amen seems like a breath of fresh air.

In his most recent book, however, there are no secrets revealed, just some standard health advice presented via other sources. The non-nutrition-related information discussed in the various chapters such as sleep, stimulating the brain with learning (brain workouts), exercise, and so on, is pretty standard. We can read similar information in other recent books on the brain by a series of MDs, such as Neal Barnard, David Perlmutter and Mark Hyman, among others.

Unfortunately, Dr. Amen is a member of the low-cholesterol camp and he recommends total cholesterol below 200 mg/dl. He says that "high cholesterol is obviously bad for the brain [no reference provided], but concedes having too little is also bad, as some is essential for making sex hormones and helping the brain function properly." He does not define "some" and thinks that 130 mg/dl is progress. This is surprising because a body of research dating back forty years has shown that low cholesterol (160 mg/dl and below) is detrimental to the brain. Those with low cholesterol tend to die earlier, are at greatest risk of developing dementia, commit violent suicide and crime, are fire starters and self-mutilators. Those with the lowest levels of LDL cholesterol are at the greatest risk for Parkinson's disease.

Research dating back forty years has shown that low cholesterol is detrimental to the brain.

Dr. Amen is the author of a series of books dealing with the brain: *Unleash the Power of the Female Brain, Change Your Brain, Unchain Your Brain, The Brain in Love*, etc., and this book is similar to the others. But unlike several other physicians recently publishing on brain health, such as Barnard and Campbell, Amen in his most recent effort does not promote a specific diet plan, but asserts that the best diet is "high in nutrients, low in calories, high in Omega 3's and antioxidants." He recommends eating with the acronym CROND in mind—calorie restricted, optimally nutritious and delicious food. (Sounds oxymoronic to me.) According to Amen this diet consists of lean meat, "good" fats, and five servings of vegetables per day. He is a strong proponent of "counting your calories" in opposition to the work of Robert Lustig, David Perlmutter, Gary Taubes, and others who have demonstrated that "a calorie is not a calorie."

Use Your Brain presents a series of case studies. Each chapter opens with a short discussion of the patient's history and relates to a specific topic, with the centerpiece of the chapter being the SPECT (single photon emission computerized tomography) scan of the person's brain. He shows each case before treatment and after treatment based on the individual brain scans.

Dr. Amen's dietary advice is to "eat like a gorilla, eating lots of fruits and vegetables," and "to eat regularly." He does recommend eating organic. He further advises to cut out junk food and the white stuff (sugar); to eat foods in season; and to buy hormone-free, free-range, grass-fed meats. He also recommends eating low glycemic foods.

So far, so good, but his breakfast begins with a smoothie of protein powder, green food powder, and fresh veggies and fruit. The best

part of this advice is the fresh veggies and fruit because protein powders usually consist of GMO (genetically modified) soy protein isolate, or whey protein, which are highly refined, subjected to high heat and chemical treatments, and are of little nutritional benefit.

He recommends using salt "only sparingly," avoiding caffeine, and using "brain healthy" spices in cooking. His protein recommendations consist of "lean, high-quality protein like beans, fish, tofu, turkey, chicken and . . . spinach." Chicken skin, fatty cuts of meat, and organ meats are out.

Spinach, claims Amen, is nearly 50 percent protein (page 79)! However, nutritional sources state that one serving of cooked spinach (180 grams) contains about five grams of protein (*Bowes and Church's Food Values of Portions Commonly Used*). The USDA says that this amount averages out to about 2 percent protein. The main amino acids in spinach protein, glutamic and aspartic acid, are non-essential amino acids and can be made by the body without an external source. Transformed by an ion to glutamate and aspartate, they become the major excitatory neurotransmitters in the brain.

It seems that Dr. Amen is so fond of spinach that " I use it instead of lettuce on my sandwiches for a huge nutritional boost." If the spinach is raw, he is getting a part of his huge boost in the form of oxalic acid, which contributes to the formation of kidney and bladder stones, gout, rheumatoid arthritis, and fibromyalgia pain.

Amen advises limiting fat consumption to "healthy fats" which are found in fish, olive oil, grape seed oil, avocado, walnut and green leafy vegetables (and other vegetables). He tells us that the brain is composed of sixty percent fat but neglects to mention that this fat is mostly saturated, which does not appear on his "healthy fat" list.

He advises clients to avoid saturated animal fats and recommends lowfat dairy products. A high saturated fat intake according to Amen is a "modifiable health risk factor which should be decreased."

Other chapters deal with exercise, better skin, better sex, memory, depression, aging and other topics. At the end of each chapter twenty tips are enumerated which deal with the topic of that chapter. The book is generously illustrated with many photos of brain scans, and Dr. Amen dedicates chapter ten to this discussion as well.

The SPECT scan, which is the focus of this book, is a nuclear procedure that requires the injection of a small amount of radioactive substance, Technetium99m (Tc99m), into a vein. At his clinics located across America, Dr. Amen uses the scan, priced at thirty-five hundred dollars per shot, as a diagnostic procedure when treating conditions from marital discord to exhaustion. Most insurance policies do not cover the cost.

Amen claims that SPECT imaging will help his patients with an ADHD diagnosis, "by evaluating whether or not the person has ADHD," and "by determining the type of ADHD involved," of which he says there are seven types, including "ring of fire." Ring of fire ADHD is defined as "primary ADD symptoms plus extreme moodiness, anger outbursts, oppositional behavior, inflexibility, rapid-fire thinking, excessive talking, and high sensitivity to sounds and lights," and "refers to the intense ring of overactivity that Dr. Amen has observed in the brains of affected people" with his SPECT scans (www.amenclinics.com). Although he emphasizes using natural treatments throughout the book, he also relies on using drugs like Adderall and Ritalin for this condition and recommends a battery of lab tests.

In a 2012 article in *The Washington Post* (wapo.st/18Rd6k0), Neely Tucker reports that Daniel Amen "is the most popular psychiatrist in America." His clinics see at least twelve hundred patients per month. Last year he grossed twenty million dollars.

Psychiatrists have been looking for such a definitive test to identify mental illness for

Amen tells us that the brain is composed of sixty percent fat but neglects to mention that this fat is mostly saturated, which does not appear on his "healthy fat" list.

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decades and the SPECT scan may be it—yet his colleagues are skeptical and even hostile. "Officials at major psychiatric and neuroscience associations and research centers say his SPECT claims are no more than myth and poppycock, buffaloing an unsuspecting public. A sham. Outrageous. Obscene," reports Tucker.

Are these comments spurred by professional jealousy or are other researchers merely dinosaurs woefully behind the times? Some think Amen is a "pioneer, a trailblazer, who is twenty years ahead of the entire psychiatric field." His colleagues may think of him with disdain but the public loves him, judging by the comments that followed this *Washington Post* article.

In his book, Amen provides a list of the seven "brain types," and, to support the explanations of these types, shows SPECT scans of the "sad" brain, and the "impulsive" brain, among others. According to Amen, the SPECT scans help him identify areas with high and low brain activity in various mental illnesses.

But what if you can't get a scan? Amen says that he has developed a questionnaire to help people predict what the scan might look like if they could get one. And based on this, he can recommend supplements—"the Amen Solution"—which he sells. He developed these supplements because "he wanted his patients and his family to have access to the highest-quality research-based supplements available." However, his supplements contain magnesium stearate, titanium dioxide and soy, much like other mainstream products. He also recommends hyperbaric oxygen for some cases.

In his book and in his practice, his multiple vitamin of choice is "NeuroVite Plus;" for fish oil, "Omega 3 Power;" and vitamin D. All are his brands, of course. Throughout the book he unabashedly recommends his supplements, scans and other books, over and over, "Much like an infomercial" wrote several commenters on Goodreads.com.

Use Your Brain has no reference section to support the statements made in the chapters, except the few citations mentioned in the text. The references can be found on his website at www.amenclinics/com/uybcya but are not correlated with any pages in the text, identified only by chapters, or by topic. But is this important?

Amen may be a good storyteller and a good showman, but most of all he is a master marketer. He has succeeded in marketing himself, his books, his wife (as an expert nutritionist), and his services all on an unbelievable scale. His books feature many anecdotes to illustrate his major points, are an easy read, and offer some credible advice.

Although his nutritional advice may *seem* helpful, the fad and the fact are blended together. His advice on exercise, staying intellectually young, and other topics may be useful, but have you heard it before? Indeed, if you have some spare time on your hands and come across a copy, give it a "skim," but this is no serious book to seek out.

Review by Sylvia P. Onusic, PhD CNS, LDN

LOW CHOLESTEROL LEADS TO AN EARLY DEATH: EVIDENCE FROM 101 SCIENTIFIC PAPERS
By David Evans

This book is a sequel to *Cholesterol and Saturated Fat Prevent Heart Disease: Evidence from 101 Scientific Papers* by the same author (and given a Thumbs Up review in *Wise Traditions*, Summer 2013). Evans provides studies in chronological order showing that the lower your cholesterol, the earlier you die; that high levels of both "good" and "bad" cholesterol help you to live longer; that high cholesterol does not cause cardiovascular disease; that low cholesterol leads to an early death in many diseases; and that low cholesterol leads to an increased prevalence of many diseases.

Some gems from Evans' book: A 1992 study of over three hundred fifty thousand men, aged thirty-five to fifty-seven, followed for twelve years, found that higher cholesterol levels were associated with lower death rates; a five-year study published in 1989 found that low cholesterol increases the risk of death by at least 340 percent in elderly women; a twenty-year study published in 2001 found that those with the lowest cholesterol levels have a 35 percent increase in death rates compared to those with the highest cholesterol levels; and a 1998 study found that low cholesterol levels are associated with higher rates of many infectious diseases including hepatitis, appendicitis, digestive and liver infections, kidney and urinary tract infections, venereal disease and musculo-skeletal infections. None of these important studies got front-page billing in the media; meanwhile the anti-cholesterol juggernaut rolls on.

This book represents a great compilation of studies we never hear about and is enhanced by an amusing foreword by Tom Naughton, producer of the movie *Fat Head*. Thumbs up!

Review by Sally Fallon Morell

All Thumbs Book Reviews

Eating on the Wild Side:
The Missing Link to Optimum Health
By Jo Robinson
Little, Brown and Company 2013

When you walk into the typical supermarket produce section you will see only a small fraction of the total variety of vegetables and fruits that exist in the world. Most of what you see has been bred to be bigger, sweeter and prettier than their distant ancestors. That breeding has had consequences in many cases but again, there are exceptions. Garlic, for example, has not been fooled around with much and therefore just about any whole bulb of fresh garlic you find in the store will be good. However, if it is not handled, stored, or prepared properly, it quickly loses most of its health benefits. The same is true for many other vegetables.

Contrary to what you might assume, breeding the nutrition out of fruits and vegetables didn't just start a few hundred years ago but in some cases, thousands of years ago. Comparison between wild and domestic varieties shows huge nutritional differences in some cases. You can get up to forty times more lycopene from wild tomatoes than that contained in modern descendants. The modern ones do look prettier though, and wild versions would probably not sell well.

Some vegetables are better for us nutritionally when they are cooked rather than eaten raw. Cooked carrots give you significantly more beta-carotene than the raw form. As with most root vegetables, the skin or outer surface contains more nutritional components, so baby carrots, which are in fact merely pared down regular carrots, are not the most nutritious option.

I didn't see any mention of possible thyroid risk when too many cruciferous vegetables are eaten raw. I also didn't see any mention of the potential downside to oxalates in raw spinach. On the other hand, *Eating on the Wild Side* provides a wealth of advice on what to look for to get the best that is available from typical grocery store offerings, and what you want to plant in your garden that could be better than what you find in any store.

There is a funny little story about Tang, the "breakfast drink," in the citrus chapter. Tang was relatively unknown to consumers at large until it was promoted as used by NASA astronauts. Certain details were overlooked in those old commercials. NASA did not use Tang because it is such a nutritious product. It is not. It just happened to work best for flavoring the recycled water that astronauts drank in the space capsules. You don't want to think about that too much.

This book does not completely cover nutrition but then doesn't claim to cover everything. There are a few details about things like edamame that I would disagree with, but only a few. There is a wealth of information about what are the best vegetable and fruit options and how to make the most of them. I give this book a qualified thumbs UP.

Review by Tim Boyd

You can get up to forty times more lycopene from wild tomatoes than that contained in modern descendants.

THE SKIN, TONGUE AND NAILS SPEAK: OBSERVATIONAL SIGNS OF NUTRITIONAL DEFICIENCIES
by Donna Burka Wild

Many of you remember Donna Wild's seminar on reading the skin, tongue and nails for nutritional deficiencies, given at a *Wise Traditions* conference several years ago. Now she has put her fascinating knowledge into book form, complete with helpful illustrations of the various conditions. What we like most about this book is the fact that her nutritional solutions are mostly food-based.

This book represents an important addition to the basic library of books on diet and health. Lots of people will be looking far more carefully at their tongues, skin and nails, thanks to Donna! Thumbs up!

Review by Sally Fallon Morell

All Thumbs Book Reviews

Grain Brain.
The Surprising Truth About Wheat, Carbs and Sugar, Your Brain's Silent Killers
by David Perlmutter, MD, with Kristin Loberg
Little, Brown & Company, 2013

David Perlmutter, MD, a board-certified neurologist and faculty member at the Institute of Functional Medicine, has written several books devoted to informing and empowering the reader to develop a more effective and healthy brain through education and lifestyle change, including: *The Better Brain Book: The Best Tool for Improving Memory and Sharpness and Preventing Aging of the Brain* (2005); *Power Up Your Brain* (2012); and *Brainrecovery.Com: Powerful Therapy for Challenging Brain Disorders* (2000). He also wrote a book for parents: *Raise a Smarter Child by Kindergarten: Raise IQ by up to 30 points and turn on your child's smart genes* (2008).

But in this book, *Grain Brain*, coauthored with Kristin Loberg, a ghostwriter, Perlmutter focuses mainly on nutrition and food, but includes other lifestyle factors such as exercise and sleep to demonstrate how they affect the brain.

Perlmutter says that the "killer carbs promote inflammation; highest in the SAD (standard American diet) are refined wheat products, which represent about 20 percent of all ingested carbohydrates in the form of breads, pastas and sugars. Specifically, high fructose corn syrup (HFCS) is the number one source of calories in the SAD."

Americans are encouraged to eat many fruits, which are a ready source of high glycemic carbs as well. Perlmutter recommends consumption of fruit in small amounts, as a dessert or snack. Fruits found their place in the ancestral diet in summer and early fall when people needed to bulk up on fat for the winter months ahead. People did not eat fruits year round until sugar became more common and fruits could be preserved with high amounts of sugars. Preservation through drying also concentrates the sugar content.

It is overindulgence in these carbs that forms those fat pads on our buttocks and thighs. Reminiscent of Atkins, the ideal diet, he says, is low carb and high fat, which reflects the common diet of our ancestors. He recommends that we eat good fats found in butter from grass-fed animals, coconut oil, and olive oil and avoid trans fats and fats found in industrial foods, such as soy, corn, and canola oils.

Perlmutter devotes much of the book to the subject of gluten and the damage that gluten does to the body and especially the brain. It's contained in wheat, spelt, kamut, barley, triticale, and possibly oats if they are contaminated with wheat during processing. Modern foods contain up to forty times more gluten than traditional grains, and modern gluten can be addictive. When gluten gets into the blood stream, it binds to the brain's morphine receptors, which creates a mildly euphoric condition and a reward effect.

Gluten is made up of two major proteins, gliadins and glutenins. But twelve minor components make up gliadin and a person can be sensitive to one or more of all these components. In gluten sensitivity (GS), which is an exaggerated immune response to gluten, inflammatory messengers form which migrate to other parts of the body, including the brain. This sensitivity seems to arise mainly from ingestion of gliadins in hybrid wheat and deaminated wheat. Deamination is a process used in modern bread making that makes wheat more water soluble. GS condition can lead to celiac disease, a serious life-long autoimmune condition with damage to the small intestine. GS, on the other hand, can occur without any gut involvement. But in many cases leaky gut results and other food sensitivities can occur. Leaky gut is a condition where the gut lining becomes weakened because of gluten and other factors, and larger food particles can pass through causing immune issues.

Gluten can also pass through the brain blood

When gluten gets into the blood stream, it binds to the brain's morphine receptors, which creates a mildly euphoric condition and a reward effect.

barrier. Research links GS to schizophrenia, epilepsy, depression, bipolar disorder, autism, ADHD (attention deficit hyperactivity disorder), migraines and other problems. Perlmutter describes several of his patients with ADHD who improved significantly through a gluten-free diet, and with the addition of probiotics, resveratrol, vitamin D and DHA (docosahexaenoic acid). However he misses the boat when not including vitamins A and K_2 as part of the package when recommending vitamin D because all three are needed together. Fermented cod liver oil is a natural source of all three vitamins—A, D and K_2.

Research shows that babies born through cesarean section have a higher risk of developing ADHD because they miss out on the probiotic inoculation that babies normally receive when passing through the birth canal. Breastfeeding is also important in that it may dampen later immune response to gluten and the development of food sensitivities.

In the past, laboratory testing existed only to diagnose celiac disease, and indicators for gluten antibodies were not positive until a certain degree of damage was done. Thus celiac disease is referred to as a "silent disease." Today testing has been developed to identify GS in its early stages through Cyrex Laboratories. Because research shows that mothers who were gluten-sensitive are 50 percent more likely to give birth to a child who later develops schizophrenia, it is important to identify and control gluten sensitivity early on with a gluten-free diet, especially before pregnancy and childbirth.

Perlmutter makes some really interesting points about specific foods and beverages that "cross-react" with gluten. But he fails to define the term and give it a bit of explanation. Cross reactivity means that the immune system, already unhappy about encountering gluten, treats these other substances as if they were also a member of the gluten family. Even though instant coffee, chocolate and grains may be gluten-free, the immune system reacts to them as if they were a piece of pizza or bowl of pasta. PEG, polyethylene glycol, found in many personal care products, baby teething gel, and food items, is also gluten cross-reactive. PEG is also contained in the gallon of bowel prep (Golytely, Colyte, Nulytely, etc.) that patients awaiting a colonscopy are asked to drink prior to the procedure. Because of this factor, inflammation due to the bowel prep may shows up on the test results.

Perlmutter says that "50 percent of the people who are gluten intolerant are also sensitive to dairy." But he does not spend any time on the subject of pasteurized dairy versus raw dairy products. Raw dairy can often be tolerated by some people who are intolerant to industrial dairy and provides a good source of probiotics and other immune factors. His recommended

GUIDE TO HEALING CHRONIC PAIN: A HOLISTIC APPROACH by Karen Kan, MD

Karen Kan, a holistic physician and medical acupuncturist based in Lake Placid, New York, used natural, drug-free methods to heal herself from fibromyalgia and chronic fatigue syndrome. She shares her knowledge in this interesting book on healing chronic pain. Topics include the many forms of pain, basic causes (trauma, toxins, food sensitivities, etc.), acupuncture, the role of the mind, grounding, EMF stress, food sensitivities and digestive disorders.

While nutrition is not the main focus of this book, the nutritional advice Kan provides is basically good, stressing healthy fats, red meat and avoidance of both refined and improperly prepared whole grains. She admits to having no experience of raw milk, which is a shame because raw milk provides so many components that strengthen the bones and the joints. Dairy fats (butter and cream) are important factors for helping the body heal and recover from pain.

Most impressive is Kan's discussion of coffee and its contribution to pain, especially back pain. Caffeine stresses the adrenal glands, which can weaken the corresponding muscle groups on the same neurological circuit. Caffeine can weaken the psoas muscle, also called the hip flexor. In addition, by revving up our fight or flight response, caffeine drains our healing Qi energy stores. If caffeine does not stimulate you, it's a sign that your stress-handling system is already exhausted and is now in the danger zone. "I find that once I get my patients off caffeine for a month or more," says Kan, "they regain the ability to produce the proper neurochemicals in response to caffeine. In other words, they start feeling jittery again (adrenaline rush) whenever they consume caffeine." Interestingly, caffeine is the most common cross-reactor to gluten.

This book, combined with a nourishing traditional diet, should be of great help to anyone dealing with chronic pain. Thumbs up.

Review by Sally Fallon Morell

diet allows a small amount of cream and milk. The Cyrex Labs, array 4, can establish exactly the components of milk that cause a reaction including whey, butyrophilen, casomorphin, and alpha and beta casein. In addition, the test provides laboratory testing for other gluten-associated cross reactive foods and food sensitivities such as milk chocolate, soy, egg, corn, potato, rice, tapioca, sesame, yeast, oats and other gluten-free grains (cyrexlabs.com).

Perlmutter emphasizes that all carbs should be restricted, specifically highly refined carbs as well as high glycemic foods such as corn, potatoes, rice and others, in order to keep blood sugar under control at all times to prevent brain inflammation. Recent studies show that elevated blood glucose readings even at the high end of the normal range are a risk factor for brain shrinkage, which is implicated in the development of Alzheimer's disease (AD) and dementia. AD has been called "diabetes type 3," a condition not caused by diabetes but by a similar mechanism. Coconut oil has been successfully used with AD patients to reverse certain levels of cognitive decline, which scientists think are caused by insulin resistance and the inability of the brain to use glucose for fuel. Dr. Mary Newport presents her positive experiences using coconut oil with her husband in her book, *Alzheimer's Disease: What If There Was a Cure?* Coconut oil, which contains medium-chain fatty acids has also been used to treat patients with epilepsy, multiple sclerosis, Parkinson's disease and other neurodegenerative diseases.

High blood sugar as a result of a high-carb diet causes AGEs, advanced glycation end products, which create free radicals and damage DNA. In this process, sugars bind with protein and cause the fibers to become distorted. A typical example of the effects of AGEs is premature aging of the skin with wrinkling and sagging, caused by sun exposure, smoking and other factors. HFCS intake increases the rate of glycation by a factor of ten.

AGEs are associated with cognitive decline, diabetes, kidney disease, stroke, heart disease and the aging process itself. Oxidative stress furthers cognitive decline. Doctors can test the levels of AGEs in the blood by the hemoglobin A1C test, which is used to test blood sugar. When blood sugar levels are elevated, increased glycation takes place. Studies show that those with high levels of A1C experience brain loss (atrophy) at rates almost double compared to those with lower levels. High levels of A1C are also associated with development of depression.

High levels of triglycerides cause leptin resistance. Leptin is the hormone made in the adipose tissues which signals our brain that we are full and to stop eating. With too many carbs in the diet, especially those from fructose, we become leptin-resistant and the signals don't reach the brain; the person ends up constantly thinking about food. High carbohydrate intakes also affect insulin levels and can cause insulin resistance, an inability of the cells to take up insulin, which leads to diabetes and many other health problems. On the flip side, grehlin is a hormone that signals the brain when we are hungry. But if hormone signals become dysregulated, the stomach continues to think it is hungry and the brain continues to give the "eat" command.

Perlmutter also highlights the reasons why the brain thrives on cholesterol and fat, and their role in good mental health. He gives an in-depth review of specific diseases, conditions and actions which are linked to low-cholesterol levels and lowfat diets.

THE SUGARMAKER'S COMPANION by Michael Farrell

Subtitled, "An Integrated Approach to Producing Syrup from Maple, Birch, and Walnut Trees," *The Sugarmaker's Companion* provides easy-to-understand and nicely illustrated instructions for getting into the sugarmaking business, everything from sugarhouse design and construction, to sap gathering, syrup making and timber production. Discussions of the marketing and economics of sugarmaking are included.

Most interesting is the discussion on tree sap as a traditional energy drink, popular in Korea to this day and certainly an important element of the Native American diet. Considered curative for many ailments (including hangover) in Asia, Finland and Russia, it's best consumed unpasteurized, but commercial pasteurized versions are now appearing on the market. A company called Troll Bridge Creek in Canada offers bottled maple sap and three fruit-flavored varieties. Even when pasteurized, maple sap offers a natural way of sweetening beverages. A squeeze of lemon in a glass of fresh maple syrup and you have instant lemonade.

Thumps up for a great contribution to the literature on traditional foods.

Review by Sally Fallon Morell

All Thumbs Book Reviews

Perlmutter's thirty-day plan to bring back an effective brain starts with a one-day fast, followed by week one, which focuses on food and eliminating the refined carbs from the diet. Carbs are limited to 30-40 grams per day; then after four weeks, carb intake increases to 60 grams per day. Coffee and wine are permitted in limited amounts.

Week two of the plan recommends establishing a fitness routine with a regular exercise program. Exercise increases blood circulation in the brain and several sessions a week prevent brain shrinkage. Even walking for twenty minutes daily is helpful in this regard. Perlmutter advises eventually attaining a daily exercise session of thirty minutes or more combining aerobics, strength training and stretching, including yoga and Pilates.

In week three, the patient concentrates on getting restful sleep. For men sleep is key in keeping grehlin levels happy and healthy, although this doesn't prove true for women. But sleep is not only important for regulating hunger signals. Research shows that those who have disrupted sleep patterns are twice as likely to develop dementia in later years. He also recommends a small high-protein snack at bedtime for those who have trouble sleeping, along with other general common sense guidelines such as setting a regular bedtime, and keeping electronics out of the bedroom. Week four of his program focuses on reinforcing new lifestyle patterns and brain-healthy habits.

The book contains a nice recipe section which reminds me of a healthier Atkins program. But like Atkins, he neglects to address the importance and role of healthy carbohydrates in the diet, especially those prepared in ways which enhance their nutrient absorption by soaking and fermenting. He also ignores the fact that bread has been the basis of civilization throughout the ages and old forms of wheat such as spelt and kamut do not contain the high levels of gluten that modern hybrids do. Sourdough breads, made properly with longer periods of fermentation, are shown to be acceptable to those with gluten sensitivities in several studies. Restricting healthy carbs and fruits may be impossible and impractical for many people, but avoiding highly refined sugars and carbohydrates contributes to a healthier brain. Raw milk products provide excellent protein, vitamins, minerals and fats, along with immune factors that are bioactive and easily absorbed. Unfortunately Perlmutter, who often recommends DHA to his patients, considers DHA produced from algae a source equal in value to cod liver oil. This Martek product causes serious digestive upsets and diarrhea in babies and some adults. Cod liver oil represents a natural source of DHA and other nutrients.

Grain Brain is a good read packed with a great deal of knowledge related to reviews of the latest research in current nutrient brain-related issues, as well as good detail on gluten sensitivity, celiac disease, testing, cholesterol and fats, and hormones related to inflammation and obesity. The book continues to enjoy phenomenal success on a number of *New York Times* best seller lists. I give this book a qualified thumbs up.

Review by Sylvia P. Onusic, PhD, CNS, LDN

MEMBERSHIP POSTER

Membership is the main source of financial support for the many projects of the Weston A. Price Foundation. We appreciate your help to increase membership. We are happy to send a free copy of our membership poster to those who will display it.

The poster is 8.5″ x 11″ with a cardboard flap that allows it to stand. It goes well with our Dietary Guidelines booklet. It can be displayed at an exhibit, a doctor's office, a library, a farmers market, etc.

If you will display it, please write for a free copy: info@westonaprice.org

Tim's DVD Reviews

Vegucated
Written and directed by
Marisa Miller Wolfson

Brian, Tesla and Ellen agree to try a vegan diet for six weeks. One of the first steps is to go through a battery of tests administered by Dr. Joel Fuhrman. Shortly after that, there is a trip to the grocery store to shop for vegan food. Since this exercise can result in a lot of wrinkled noses and looks of distaste, something must be done to keep the test subjects from fleeing. The would-be vegans are tantalized with goodies like Oreos, Teddy Grahams, cookies, and Aunt Jemima pancakes. Apparently ingredients like *trans* fat, soybean oil, high-fructose corn syrup, maltodextrin, and other chemicals can be part of a healthy vegan diet. The Aunt Jemima box shows a square of butter melting on the pancakes. I guess they carefully ignore that image or assume it is margarine. . . . because *trans* fat is okay. Later the new converts go looking for vegan or vegetarian shoes.

Tesla, originally from Honduras where they like their meat, has the hardest time adapting to the diet. In the long run she is not able to stay fully vegan. Brian sounds a little uncertain whether he can stick with it when asked at the end. Ellen seems to be all right with it, at least on film. Ellen is a part-time comedian who likes to joke about being the love-child of Mick Jagger and Carol Burnett. That's funny because she really does look like a cross between Mick and Carol. In a way, a vegan diet can be kind of funny. Maybe that appealed to her sense of humor.

There is some discussion in the video of human health aspects, but more time is spent looking at animal abuse on factory farms. That seems to be the prime motivator in this video. Some scenes are very gruesome. When it comes to the atrocities of factory farming I am in complete agreement with the vegans. That's about all I agree with them about. They don't want to talk about small, humane farms, which do exist and demonstrate that humane animal farming can be successful for all concerned.

As far as human health issues, I've found that studies show whatever you want them to show. Until you know who performed them, who paid for them, and what their agenda is, the words "studies show…" are not enough to confer legitimacy by themselves. It is also absolutely necessary for history to have a voice in the final conclusion. You have to look at what kind of nutrition has kept people healthy over the long run, not for a few years or even for a few decades. Without historical perspective, the job is not done. Thumbs DOWN.

The Cheese Nun
Produced and written by Pat Thompson
PBS Home Video

Sister Noella is one of a group of cloistered nuns in Connecticut who are very self-sufficient. When I say self-sufficient, I mean they do the farming, bale the hay, and drive the tractors and trucks. That's not all. There is a scene of a nun in full habit hoisting herself into a tree by rope to cut limbs and prune. She is using a handsaw too, not some sissy power tool. Another nun is a blacksmith. We see many shots of nuns doing things you don't see every day. In many ways they have established a small, productive community that largely provides for itself, something I consider ideal.

Sister Noella is their expert maker of cheese. The camera follows her back to school as she expands her expertise in more scientific directions. There are endless cheese-related fungi and microbes to scrutinize under the microscope at the nearby university. Her education takes her to France where one finds the ultimate experts in cheese.

Her education takes her to France where one will find the ultimate experts in cheese.

We learn some interesting things about the small cheese-making industry in France. As in America, many are being forced out of business by regulation. Sister Noella had to make some effort to gain their trust, but I suspect they figured out pretty fast that she didn't look like a typical

inspector or regulator. One cheesemaker ages his cheese in a cave carved out of volcanic rock—a very interesting looking cave. If your only experience with cheese is the product that comes from standard American industry it might surprise you to know that cheese made the traditional way comes out different every time.

After much learning and making a lot of friends, the cheese nun returns home and attends a cheese convention and competition in Louisville, Kentucky. Some of the scenes look like they could have been at a *Wise Traditions* conference. In the foreground of one shot is a sign announcing a talk with the title "Cheese as Aphrodisiac." I'm pretty sure that was not a talk given by Sister Noella. There is also a woman rocking a nice Holstein-pattern dress. It would be great to see those at the next *Wise Traditions* conference also. Thumbs UP.

Natural Beekeeping
Jerry Dunbar
Great Lakes Production Lab

Jerry Dunbar demonstrates nearly every facet of beekeeping in this video. Beginning with the bare basics of bee biology, the queen bee usually lives around two years. The queen is the core of the hive. She is the rock star. Without her there is no hive. Worker bees generally live a few weeks in the summer. In the winter they may live a few months. Drones (males) live until they mate or until winter comes and they are kicked out into the cold to die. They don't get much respect. They're only around for one purpose. Jerry estimates there were around fifty thousand bees in one of his hives.

We are shown some of the methods for managing bees without saying ouch (or something worse, depending on your disposition) too much. One old trick is smoke, which apparently mellows out the bees so they are less likely to sting. We're talking just normal wood smoke, not tobacco or certain weeds. Someone has probably thought of experimenting with that but Jerry doesn't go into it here.

He shows us some of the details of constructing a hive, including how to add features that make it easy to extract the honey without disrupting the business of the bees. He uses something called a "hive jacker." During the winter one can wrap the hive with black paper which absorbs heat and keeps the hive a little warmer.

Part II details how to make various products from the hive. Honey is the obvious one and probably most popular but there are other options. Mead is a kind of wine made from fermented honey. Mr. Dunbar gives the formula of five gallons of water, about fifteen pounds of honey, a cup of pollen, and some yeast. The mix is fermented at seventy degrees and then stored in a cool dark place until it stops bubbling. Then it is bottled and ready for your next party.

You can also have honey straws at that party. Honey straws are exactly what they sound like—straws full of honey. Apparently that packaging technique is popular enough to bring in up to five times as much honey money per pound as from a plain old jar of the stuff.

If you cut yourself at the party or develop a cough afterwards, some anti-viral, anti-bacterial propolis tincture is another hive product that could come in handy. You can also make lip balm from a combination of beeswax, propolis and coconut oil.

I still don't know where the term "bee's knees" comes from and it may not be all the buzz, but this video rates a thumbs UP.

JOURNAL NOW AVAILABLE AS DIGITAL TALKING BOOK FOR THE VISUALLY IMPAIRED

We now have our journal converted into an audio format for the visually impaired. Special software is required for this, such as Dolphin Easy Reader. Go to the JOURNALS tab on our homepage. Starting with Fall 2011, click the journal you are interested in. Please tell others! Many thanks to Amy Adams of ePubUSA.com for this service!

Hives can be constructed in ways that make it easy to extract the honey without disrupting the business of the bees.

Soy Alert!

WHEY TO GO: SOY PROTEIN LOWERS TESTOSTERONE IN STRENGTH-TRAINING MEN

By Kaayla T. Daniel, PhD

The soy industry is putting a positive spin on a recent study out of the University of Connecticut,[1] but why they haven't tried to spin it deep into the ground is a mystery to me.

In a randomized cross-over, placebo-designed study, researchers compared the estrogen production of men drinking soy protein to those drinking whey. They looked at changes in estradiol concentrations after only fourteen days, and reported some good news—the soy drinkers did not end up with more of the female hormone. The researchers did, however, find lower testosterone levels and higher cortisol levels in the soy drinkers. In other words, less of the manly hormone and more of the stress hormone. Sounds like stressed out soy boys to me!

For years top body builders such as the late Vince Gironda touted diets rich in eggs, raw milk, red meat and other animal products while warning about the dangers of soy protein.[2] In today's soy-pushing climate, the U Conn researchers describe these legitimate concerns of Gironda and others about feminization and testosterone depletion as "fears" that "largely stem from body building mythologies."[3]

Testosterone might appear to be just a macho thing, but it's a vital hormone for growth, repair, red blood cell formation, healthy sleep cycles and immune function, in addition to sex function.

BAD FOR BODY BUILDERS

Other studies have shown that soy protein is less effective for body builders than whey protein because its amino acids are more likely to go into splanchnic circulation (stomach, small intestines, colon, liver, pancreas and spleen) than into peripheral regions such as muscle tissues.[4,5] This makes sense because whey protein provides greater amounts of the branched chain amino acids (BCAAs) leucine, isoleucine and valine as well as more methionine and lysine, all of which are critically needed for muscle building.[6-9] Researchers have also found the low BCAA content of soy protein adversely affects muscle building by disrupting both leucine signaling[10] and the activation of myogenic translation initiation factors.[11-14]

TESTOSTERONE DEPRIVATION

Prior to the U Conn study, only one previous study compared the effect of soy and whey protein supplementation on the hormones of men doing resistance training.[15] That study reported "no significant differences" between the soy and whey groups for total testosterone, free testosterone and sex-hormone-binding globulin (SHBG) after twelve weeks of supplementation. But as the U Conn team suggests, soy may well put testosterone at risk. In fact, over the past few decades, many researchers have found that phytoestrogens have adverse effects on both the production and utilization of hormones in males.[16-18] Indeed, scientists have even induced "testosterone deprivation" in animals simply by feeding them diets rich in soy isoflavones.[19]

For the most part, the soy industry has tried to promote any testosterone-tanking effects as beneficial. Just as they promote hormonal changes that can lead to anovulatory cycles and infertility in women as valuable tools in the war against breast cancer, they tout testosterone-lowering in men as protective against prostate cancer and atherosclerosis.[20,21]

Although the possibility that soy foods or supplements could prevent these deadly conditions tends to make headlines, few men hear that the downside is demasculinization. Testosterone might appear to be just a macho thing, but it's a vital hormone for growth, repair, red blood cell formation, healthy sleep cycles and immune function, in addition to sex function.[22] And low levels of testosterone have also been linked to low thyroid function, another unwanted and common side effect of soy consumption. Low thyroid function leads to loss of libido in both men and women.[23]

Perhaps the most startling study came out of the University of North Carolina at Chapel Hill a few years back. Completed for the National Cancer Institute, it found soy-eating men experienced "nipple discharge, breast enlargement, slight

decreases in testosterone and hot flashes." In an attempt to downplay these rather sensational findings, lead researcher Steven H. Zeisel, MD, reported to *The Washington Post* that nothing "serious" was found, because they administered doses up to thirty times what might get from "normal foods." To reassure men, he stated, "I don't think there are a lot of estrogenic worries. Your testicles will not shrink and you won't have massive breast enlargement."[24]

To their credit the U Conn researchers did not step up to reassure our men.

Kaayla T. Daniel, PhD, is The Naughty Nutritionist™ because of her ability to outrageously and humorously debunk nutritional myths. Kaayla is vice president of the Weston A. Price Foundation, on the board of directors of the Farm-to-Consumer Legal Defense Fund, and author of The Whole Soy Story: The Dark Side of America's Favorite Health Food. *For more information, visit Kaayla's website: www.drkaayladaniel.com. To follow her on Facebook https://www.facebook.com/DrKaaylaDaniel.*

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A STAR-STUDDED CAST OF SPEAKERS AT *WISE TRADITIONS 2013*

Chris Masterjohn, PhD, on how the fat-soluble activators protect against heart disease.

Kate Rheaume-Bleue, ND, on vitamin K and bone development.

Kim Schuette, CN, spoke to a rapt audience on recovery from autism and seizure disorders.

Sylvia Onusic, PhD, CNS, LDN on soy in prison diets.

Tom Cowan, MD, presents his experiences with cancer and heart disease.

Hannah Crum, kombucha momma, inspires a generation of kombucha makers.

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Legislative Updates

CONFLICTING SIGNS IN THE LONG FIGHTS OVER FOOD SAFETY AND GMOs
And Why It's Important to Stay in the Fight!
By Judith McGeary, Esq.

As the second round of the national food safety debate draws to a close, the future of our food system remains uncertain. What is certain is that there is a lot of work ahead if we are to protect the farmers and producers who provide nutrient-dense foods for our communities.

ROUND ONE

The first round was the debate and passage of the Food Safety Modernization Act (FSMA) in 2010. The debate was triggered by the very real problems in the conventional food system, with its long, complicated supply and distribution chains. Unfortunately, as is so often the case, these real problems became the excuse for a so-called solution that is unlikely to actually solve the issues. FSMA did not address the revolving door between the agency and industry, epitomized by Michael Taylor's current position as FDA's food czar following his work for Monsanto. Nor did it address the underlying causes of most foodborne illness, namely the industrialized agriculture production and processing systems. But FSMA will allow big agribusiness and food companies to claim that they are meeting the "highest standards possible" to ensure food safety, regardless of the continuing problems.

In cooperation with other organizations and a broad grassroots movement, the Weston A. Price Foundation worked to find a way to protect the most vulnerable farmers and food producers as much as possible in the new federal law. The result was the Tester-Hagan Amendment, which exempts producers who gross less than half a million dollars annually and who sell more than half of their products directly to consumers or local retailers and restaurants from what we predicted would be onerous new regulations. The inclusion of this amendment was vehemently opposed by both agribusiness and most consumer "victim" groups, but the local food movement prevailed.

ROUND TWO

The second round of this debate started early in 2013, with the FDA's proposal of regulations to implement FSMA. As predicted, the proposed regulations were extremely burdensome and, in many cases, counter-productive to the goal of food safety. In addition, while the FDA had been forced to include the Tester-Hagan provisions (since they were written into the statute), the agency also proposed a revocation process that would undermine the intent and effect of the exemption.

WAPF again worked at both the grassroots and organizational level to protect farmers and food producers who provide nutrient-dense foods. At the grassroots level, WAPF sent out multiple action alerts explaining different sections of the proposed rules and providing guidance for members to submit comments. In addition, at the annual conference in Atlanta, WAPF worked with the Farm-to-Consumer Legal Defense Fund to collect hard copy comments, which were then sent to the FDA. WAPF encouraged people not only to submit comments to the FDA, but also to contact their congressional delegation to urge Congress to rein in the agency.

At the organizational level, WAPF cooperated with several other nonprofit organizations, including the National Family Farm Coalition and the Farm and Ranch Freedom Alliance, to submit detailed comments on behalf of the organizations. In these comments, the organizations called on FDA to revise the proposed regulations to:

- provide appropriate due process protections for farmers and food producers under the Tester-Hagan exemption;
- remove the restrictions on sustainable methods of farming, including diversified livestock-crop farms, the use of working animals, and the use of biological soil amendments, due to the lack of data showing an

Judith McGeary is the Austin, Texas chapter leader, an attorney and small farmer in Austin, and the executive director of the Farm and Ranch Freedom Alliance. She has a B.S. in biology from Stanford University and a J.D. from the University of Texas at Austin. She and her husband run a small grass-based farm with sheep, cattle, horses, and poultry. For more information go to www.farmandranchfreedom.org or call (254) 697-2661.

WAPF again worked at both the grassroots and organization level to protect farmers and food producers who provide nutrient-dense foods.

actual, verified increased rate of foodborne illness;
- recognize that microbiological diversity protects against pathogens, and allow for the reasonable use of all sorts of microbial inoculants, including compost tea;
- reduce the testing requirements for water and recognize that the presence of generic e. coli does not necessarily create a risk for contamination;
- exempt businesses that gross less than one million dollars annually from the requirement for a Hazard Analysis and Risk-Based Preventive Controls plan;
- exempt various low-risk activities, whether conducted on a small farm or elsewhere;
- expand the exemption for small-scale processors to include an exemption from the "current good manufacturing practices" requirements;
- clarify that food distributors and processors will continue to be able to obtain ingredients and products from exempted farms; and
- re-analyze the costs and the benefits of both proposed rules to address specific errors.

Round two wrapped up with the end of the comment period on November 22, and round three is already beginning. At the agency level, FDA is now required to review, analyze and respond to all of the comments. Typically, the agency would publish a final rule after conducting this analysis. However, thanks to the outcry from the grassroots, Congress is again paying attention to the issue. Seventy-five members of Congress, including forty-two Republicans and thirty-three Democrats and Independents, signed a letter requesting that the FDA issue a second draft of the proposed regulations, to allow for another round of public comments. The bipartisan coalition expressed concerns about the impact of proposed rules on farmers and businesses, including many of the same issues that WAPF and sustainable agriculture groups have raised.

In addition, as covered in the previous issue of *Wise Traditions*, Representative Benishek's proposal to require the agency to conduct a scientific and economic analysis prior to enforcing any of the rules was adopted by the U.S. House of Representatives and is under consideration by the conference committee for the Farm Bill. At the time this article goes to print, the conference committee is continuing to meet to work out the differences between the House and Senate versions of the Farm Bill.

What does all of this mean? On the one hand, the FDA's proposed regulations were truly terrible. The undermining of the Tester-Hagan exemption, combined with the extreme level of regulation proposed for non-exempt farms and producers, would be very damaging to the growing good food movement. At the same time, the exemption itself still stands—FDA could only target one farm or producer at a time, while thousands more will remain exempt. While big agribusiness and some consumer groups continue to argue that the exemption should be abolished, there has been no proposal in Congress to do so. And Congress has taken the rather unusual step of considering intervention in response to a proposed rule. Usually, Congress waits until an agency has issued a final rule and the damage is done before doing anything (if even then).

The bottom line is that we simply don't know what will happen next. There is a lot at stake in the next stage of this fight, and we must stay engaged.

THE FIGHT OVER GENETICALLY ENGINEERED FOODS

As with the food safety issue, there is both good news and bad news on the issue of genetically engineered foods.

The much-watched Washington State initiative to require labeling of GMOs lost by a narrow margin of 51 percent to 49 percent. The biotech industry and junk food companies spent more money than has ever been spent in a Washington State ballot measure contest, creating a blitz of TV and radio ads that repeated their lies often enough to convince Washington voters that they were the truth. In addition, the turnout in the Washington 2013 election was the lowest ever recorded, favoring older and more conservative voters; there was an extremely low turnout from younger, more progressive voters who more often favor labeling. In essence, it appears that the majority of Washington voters do support labeling of GMOs, but the issue by itself is not enough to motivate enough young voters to vote. These off-

year election results indicate that a Washington State GMO labeling ballot measure might win in a presidential election cycle, which typically has much higher voter turnout.

While this defeat was discouraging, the fight against GMOs gained ground in other places. In October, voters on the Hawaiian island of Kauai passed a ground-breaking new law that mandates disclosure of pesticide use and the presence of genetically modified crops by agrochemical companies on the island, and establishes buffer zones between these operations and schools, hospitals and residential areas. The mayor vetoed the bill, but the city council then overrode the veto in November.

This victory is important not only for the citizens of Kauai, but for all of the U.S. The island of Kauai hosts fifteen thousand acres of crop lands that are used by biotech companies and chemical manufacturers to test their products. This bill creates important protections on one of the key battleground areas in the spread of genetically engineered crops.

In addition, GMO labeling bills gained ground in other states, including New Hampshire, where a vote is expected in January. Upcoming battlegrounds for GMO labeling include possible legislation in Vermont, Hawaii, and New York, and a ballot measure in Oregon for the 2014 mid-term elections. On the international front, Germany, which already labels products that contain GMO ingredients, is moving the debate forward by considering whether to include labels on the meat of animals that have eaten GMO-based feed. Much of the GMO feedstock imported to Germany is grown in the United States, so such labeling would be likely to affect the demand for GMO crops in this country as well.

POLITICAL ACTIVISM AT THE STATE LEVEL: AN EXAMPLE OF WHY IT MATTERS, FROM TEXAS

Most state legislatures will be beginning a new legislative session in early 2014. In several states, grassroots activists are working on bills dealing with raw milk, GMO labeling, cottage foods, and more. The reality is that most of these bills will not pass in 2014. So why make the effort?

The easiest answer is that sometimes the bills do pass, whether on the first or second or third try. In recent years, bills to expand legal access to raw milk have passed in Colorado, Tennessee and Arkansas. Cottage food bills legalizing the sale of low-risk home-made foods have passed in many states, with over half the country now having such laws on the books. It often takes more than one session to build sufficient support for a bill, but success is possible.

Less obviously, there can be long-term benefits to political activism even if you don't win a specific fight. Working on a bill, win or lose, can make a difference. Recent events in Texas provide a good example of the phenomenon of losing the legislative battle while winning important ground.

Under Texas law, it is legal for a Grade A dairy to sell raw milk. The agency regulations, however, limit the sale to the point of production, that is, at the farm. During a public meeting in 2009, agency officials stated that the regulation means that each individual had to drive to the farm to purchase his or her own milk. At that time, I asked the Texas Department of State Health Services to respond in writing as to whether various scenarios violated the agency regulations. Specifically, I posed a couple of scenarios: (1) Five people take turns picking up milk; one person drives out each week, and picks up milk for all five families; the next week, it's another person's turn. (2) Person A has a van; five other families pay Person A to pick up their milk for them, designating Person A to act as their agent. The agency responded that both scenarios violated the regulations, and that both the farmer and the person doing the purchasing were acting unlawfully.

As an attorney, I disagreed with the agency's position. But one attorney's opinion does not make the law. Without a test case, the best I could tell Texas farmers and raw milk consumers was that group pick-ups, agency arrangements, and informal co-ops were a "gray area of the law"—they should be legal under normal principles of agency law, but the state contended the opposite.

Since 2009, we have twice tried to pass a bill in the Texas Legislature to legalize off-farm sales and delivery of raw milk by licensed dairies. The

Upcoming battlegrounds for GMO labeling include possible legislation in Vermont, Hawaii, and New York, and a ballot measure in Oregon for the 2014 mid-term elections.

Nothing changed in the wording of the regulations between 2009 and 2013. What changed was the agency's attitude and interpretation.

Texas Legislature only meets every other year, so the bills were filed in 2011 and 2013. At both sessions, the bill died, although it made greater progress on the second attempt. In the course of fighting for the bills, however, we educated many legislators about the issue, which proved to be very valuable.

In November 2013, the city of Ft. Worth was alerted that an individual was allowing people to pick up raw milk at her home. When city health officials came out to her house, the woman told them that she was acting as a volunteer on behalf of her co-op. Under this arrangement, one person would drive to the farm and pick up milk for a small group of families, who in turn picked up their milk at this woman's home. City officials threatened the woman with fines and even arrest if she continued to "distribute" raw milk, relying on the state regulations.

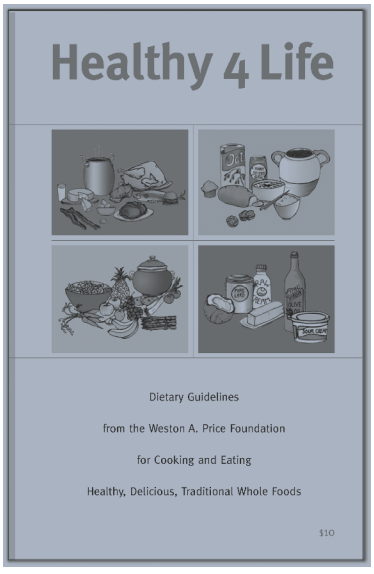
Both the consumer and the farmer contacted their legislators. The state agency quickly found itself under pressure to explain whether its regulations truly did create grounds to fine or arrest an individual who allowed milk to be distributed from her home.

Remember that under the agency's written opinion from 2009, this was illegal activity, by both the farmer and the homeowner.

But within two weeks, the state agency provided this response: "It is not a violation of state regulations for a dairy customer to purchase raw milk from a farmer at the farm for themselves and for others as you indicate you are doing for your COOP (and other members may do for you). It also is not a violation of state regulations for you to deliver that milk to other COOP members or to have them pick it up from you. . . . As long as the dairy is not delivering raw milk to you, then the dairy is not in violation of their state permit."

Nothing changed in the wording of the regulations between 2009 and 2013. What changed was the agency's attitude and interpretation. While the agency isn't going to explain the reason for this change, the best bet is that it is due to political activism by raw milk proponents. Recognizing that the legislators were watching what the agency was doing, and that there could be political repercussions to pursuing individuals for this activity, the agency chose to adopt a less restrictive and more reasonable interpretation of its regulations.

We'll still keep fighting for a bill to allow farmers to sell and deliver milk off-the-farm in Texas, and I believe that we will ultimately win that battle. But win or lose, the decision to be involved in the political process has already paid off for raw milk consumers in Ft. Worth and for our movement.



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The feedback to this publication has been very positive. It is suitable for use in schools and inner city programs. To order online, go to westonaprice.org. Booklets are $10 each or $6 each for orders of ten or more.

A Campaign for *Real Milk*

THE CAMPAIGN TO PASTEURIZE BREAST MILK

Sylvia Onusic, PhD, CNS, LDN

A Campaign for *Real Milk* is a project of the Weston A. Price Foundation. To obtain some of our informative *Real Milk* brochures, contact the Foundation at (202) 363-4394. Check out our website, www.RealMilk.com for additional information and sources of *Real Milk* products.

According to the Ross Mothers Survey, which has been tracking breastfeeding data for years, breastfeeding at birth has increased from approximately 25 percent in the early 1970s to 75 percent in 2007. The overall benefit of feeding babies breast milk instead of formula is well established. In 2007, the U.S. Department of Health and Human Services issued a report showing that babies who are formula-fed instead of breastfed are at increased risk for asthma, acute ear infections, diarrhea, and SIDS (sudden infant death syndrome).[1]

But less than half of all mothers are able to breast feed their babies to age six months as recommended by the American Association of Pediatrics, and just a fifth of those breastfeed for an entire year.[1]

Before baby formula, "wet nurses" fed babies who could not be nursed by their mothers. Such informal breast milk sharing has gone on for thousands of years. But in these modern times when many of us don't even know our neighbor, the Internet provides the social gathering place for meeting the traditional needs of modern women.

The visibility and popularity of the four main Internet sites selling breast milk, "Human Milk 4 Human Babies," "Eats on Feets," "Only the Breast," and "Milk Share," prompted a Columbus, Ohio, research group to examine the quality of Internet breast milk donations. Their results, which were published at the end of October 2013 in the journal *Pediatrics*, quickly went viral on the Internet. Lead author Sarah Keim and her team reported that the human milk samples were "highly contaminated" with pathogenic bacteria and "posed a risk for negative outcomes" for infants, especially premature or low birthweight infants.[2]

A FLAWED PROTOCOL?

The research group solicited samples of breast milk from the four main websites providing this service and ended up with one hundred one samples of milk. The researchers instructed the sellers to send the samples to an anonymous rented post office box. They then compared the quality of these samples to twenty unpasteurized samples of unknown age from the local milk bank, which served as a control group.

The researchers "analyzed all the samples in a single batch." We don't know whether this refers to both the milk bank samples and the Internet samples, or just the Internet samples, because the text does not specify. However, Table 1 in the paper shows separate results for the Internet samples and the milk bank samples.

When testing for HIV and cytomegalovirus, the laboratory technicians used the latest in molecular biology technology, DNA testing; for the bacteria, they used the traditional method of growing bacteria on laboratory plates. They then calculated the prevalence of the bacteria which they grew on the plates, and used statistical analysis to compare the mean and prevalence of the bacteria grown on the specific plates with those from the milk bank samples.

According to their analysis for prevalence, gram-negative bacteria and *Staphylococcus sp* were the only bacteria that were significantly more prevalent in the Internet breast milk compared with those of the milk bank. The average number of selected bacteria was significantly higher in the Internet samples compared to the milk bank samples, except for the Streptococcus species.[2]

MEDIA PORTRAYAL

The New York Times, *USA Today*, NBC News, even PBS, and many bloggers served up the same version of the story. The abstract of the study was readily available on the Internet but the article was available only by purchase. It seemed that many of the media reporters and

bloggers did not bother to read the entire text. With the headline "Breast Milk Donated or Sold Online Is Often Tainted, Study Says," *The New York Times* referred to the sale and donation of human breast milk on the Internet, as a "cottage industry." Their story relied almost exclusively on an interview with the lead researcher, Sarah Keim.[3]

According to the study abstract, "most (74 percent) Internet milk samples were colonized with Gram-negative bacteria . . . and exhibited higher mean total aerobic, total Gram-negative, coliform, and *Staphylococcus sp* (species) counts than milk bank samples. No samples were HIV type 1 RNA-positive; 21 percent of Internet samples were cytomegalovirus DNA-positive."[2]

According to Keim, the researchers found that 64 percent of the samples from the Internet sellers were "contaminated" with staph, 36 percent with strep, and almost three-quarters with other bacterial species including salmonella. Keim told *The New York Times* that "most staph and strep are harmless at normal levels," but that salmonella "doesn't belong in milk at all."[3]

ALIVE WITH PROBIOTIC BACTERIA

What's misleading about this study is the fact that the researchers don't tell us the strain of the bacteria, just the general species that was found in the milk, such as *Streptococcus sp.* (The designation for species normally used is *spp* not *sp* as indicated in the paper.) The vast majority of these general strains are benign.

In fact, breast milk is alive with probiotic bacteria. A 2012 study found a large microbial diversity in colostrum and breast milk. Around seven hundred species populate the breast milk microbiome. The most common bacterial genera in the colostrum samples in this study were weissella, leuconostoc, staphylococcus, streptococcus and lactococcus.[4] Weissella is a lactic acid bacteria related to lactobacillus. The most common bacteria found in breast milk, probiotic bacteria, as well as commensals, were, in the *Staphylococcus spp.* (staph) species (spp): *S. epidermidis, S. hominis, S. capitis* and *S. aureus*; and in the Streptococcus (strep) spp: *S. salivarius, S. mitis, S. parasanguis,* and *S. peores.*[5]

Around seven hundred species populate the breast milk microbiome.

The Wall Street Journal reported that, "Some infection-causing bacteria, including *E. coli*, staphylococcus and streptococcus, were found in 72 percent of the samples." How they reached this conclusion is unknown because the study itself did not actually report the type of staph and strep in the milk, which usually contains several staph and strep species as defined above.[6]

Bloggers expressed alarm that *Escherichia coli* (*E.coli*) was found in the breast milk. *E. coli* is a gram-negative bacteria commonly found in the intestine.[7] As part of the normal gut flora it produces vitamin K_2 and controls pathogenic bacteria within the intestine.[8] Keim confirmed in her interview with *The New York Times* that *E. coli* is "normal" (she did not say "benign") and warned that the bacteria "probably came from improper washing of hands, breast pumps or milk containers and then proliferated during storage and shipping."[3]

Regarding the cytomegalovirus found in the Internet samples, the CDC (Centers for Disease Control) says that "cytomegalovirus (CMV) can be transmitted to infants via contact with maternal genital secretions during delivery or through breast milk," and that these infections don't harm the infant. Healthy babies who contract CMV after birth "generally have few, if any, symptoms or complications from the infection."[9]

FLAWS

In response to the Keim article, Joseph A. Ladapo, assistant professor of medicine at the New York University School of Medicine points out the main weakness of the study: it compared the highly selective one hundred one Internet milk samples to only twenty milk bank samples that served as the control group, a tactic that greatly reduces the statistical power, that is, the ability to make correct predictions. He points out that a larger number of Internet milk samples and equal number of milk bank samples might have yielded much different results. The number of control samples should equal the samples to be tested. Ladapo says that, "Some parents (including this author) go to considerable lengths to provide their infants with human breast milk because of the body of evidence supporting its health benefits."

He suggests a study using real parents and their babies and other positive studies to assist

parents in protecting and supporting their children. He also throws out a very provocative statement regarding contamination of the samples occurring in the medical setting: "Studies in medical settings support the notion that some hygienic practices are often difficult to sustain"[10] or, in plain English, were the samples contaminated at the lab?

Regarding three samples that contained salmonella, "not normally found in breast milk,"[3] the question of contamination in the hospital rears its ugly head. With freezing, thawing and refreezing, and later processing, some contamination certainly could have occurred.

Indeed, the way that the samples were procured and handled certainly poses some serious questions. The "Internet samples" were "stored at -20 degrees Centigrade until analyzed within two months."[2] The article does not tell us the condition of the samples when they arrived, considering they may have lingered in the rental mail box for an undefined period of time until pickup. "How diligent were the staff in picking up those samples every day right after they arrived? We would assume that the samples were frozen when sent because moms normally freeze excess breast milk."[11] Researchers left it up to the sellers to choose the packing materials, also jeopardizing the results of the study. We don't know whether frozen samples remained frozen, were allowed to thaw, or were at room temperature. One thing is certain, after arrival the samples were returned to the freezer for up to two months.[2] Freezing and thawing and refreezing would alter bacterial content.

One blogger who criticized the study had apparently read the paper. Sarah, mother of three breastfed children and author of the blog

THE INDUSTRIAL REPLACEMENT FOR BREAST MILK

Prolacta Bioscience in Monrovia, California is the first company to develop and sell human milk product for a profit. Prolact +4 H2MF is an enhanced breast milk product in the form of a "syrupy fortifier," concentrated to a 10-1 ratio to be used in the hospital, costing almost two hundred dollars per ounce for premature and low weight babies. A ten-week supply of the syrup costs over ten thousand dollars per baby and is typically covered by insurance, while breast milk supplied by a milk bank is not. Other versions are available in more "souped up" super strength, +6, +8, and +10. The product is used to fortify mom's breast milk.

The company started in 1999 and now has a client roster of over fifty hospitals. Prolacta chief executive, Scott Elster, says that "sales grew by 200 percent in 2010." He is confident that "sales will continue to grow at this pace." It remains to be seen how much babies will benefit from this new industrial supplementary product with a shelf life of three years at room temperature.[2]

The company accepts donor milk but does not financially compensate the donors because the final product may be somehow tainted. No matter, it seems to have adequate supplies of breast milk. They do pay a team of aggressive recruiters who travel the county searching out donating moms for Prolacta's "Milkin' Mamas" program through contact at hospitals, baby supply stores, pediatrician's offices and women's events.

Elster is confident that his supply of milking moms will continue as volunteers—he says that, "our main hold-up is educating the market"—that is, persuading more hospitals to buy Prolacta's superserum, made by separating the milk, much like in the industrial milk process for cows milk, using the protein part and then adding back some fat.[1] His other challenge is persuading more mothers to donate.

The Prolacta website (www.prolacta.com/research-development/), lists the studies the company has financed in cooperation with hospitals and universities to validate their product. Like pharmaceutical companies, their chief researchers also speak at national conferences, such as the American Academy of Pediatrics.

After the research article, "Microbial Contamination of Human Milk Purchased Via the Internet," from the Columbus, Ohio team went viral on the internet, OnlyTheBreast.com, one of the four major internet sites selling breast milk, decided to pull out of the game, discontinue its services and to form a partnership with Medolac Laboratories, based in Lake Oswego, Oregon, another of the for-profit breast-milk companies. The Mothers Milk Cooperative is another of their clients.[2] It seems that OnlyThe Breast.com will funnel its breastfeeding moms to Medolac, which plans to screen donors and buy their milk for one dollar per ounce.

Lactating moms, with the best intentions, thinking that their milk is going to help premature babies, continue to donate. But their sacred milk is used to produce an almost obscene product that has been patented, pasteurized and highly refined, for the benefit of stockholders.

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3. https://www.hmbana.org/.

Nurshable: Joy in Gentle Parenting (established in 2011 with twenty to thirty thousand viewers per month), says that "re-freezing the milk goes against every breast milk handling guideline out there." She also warns that the methods used by the researchers to obtain the milk samples would raise a red flag for all those who donate breast milk. "The researchers refused to speak in person or over the phone, dodged questions about the baby, requested only a small amount of milk, did not designate shipping and storage conditions." One of the most important steps, a typical conversation about the recipient baby, did not take place. Sarah feels that in this study real life conditions were not met, that the researchers purposely excluded responsible donors, and that the study did much damage to the breast milk-sharing community.[11]

The authors of the paper admit that their procedures to maintain anonymity may have biased the results because women who asked about a recipient infant or asked for telephone communication were excluded from the study. They didn't collect useful information from the sellers, like whether the milk was ever frozen, or even information about the seller's health. They also admitted that they didn't know the age of the twenty milk bank samples used as controls, and that some could have been shipped just like the Internet samples were, which would mean that they could have been frozen, thawed and refrozen as well.[2]

THE PUSH TO PASTEURIZE

In the fall of 2010, the FDA issued a warning to moms to avoid feeding babies another woman's breast milk because of possible body fluid contamination.[12] But to date there are no reported cases of infection from breast milk acquired online.[13] And no examples of babies who have become ill consuming Internet breast milk were given in the study.[2]

Emma Kwasnica, founder of the Human Milk 4 Human Babies Global Network, said that in her experience, sellers and buyers meet and "often form close relationships." "With community milk-sharing, you know exactly who your milk is going to," she said. The Human Milk 4 Human Babies network now includes one hundred thirty Facebook communities in fifty-two countries. "If babies were getting sick from this milk, we would know," she said.[6]

But study author Sarah Keim appeals to fear: "Infants consuming this milk are at risk for negative outcomes, particularly if born preterm or are medically compromised," she warns. "The potential risk of milk sharing to infant health needs to be further examined related to other risks," such as toxins, pharmaceutical and drug exposure.

Then comes the push to pasteurize. "Milk banks usually pasteurize milk, which is largely effective in limiting the risk of bacterial and viral illness." She says that human milk sharing via the Internet has the potential "to cause infectious disease" and, in these samples, the bacterial contamination points to "inadequate hygiene at the point of milk expression. . . ."[2] The study conclusions don't provide many options for those moms who need to find sources of breast milk.

SHOULD BREAST MILK BE PASTEURIZED?

What Keim doesn't tell us, and which she should know, is that studies show that raw breast milk is both safer and more effective than pasteurized milk. In a randomized, controlled trial of two hundred twenty-six babies, infections were significantly higher in babies given pasteurized human milk and formula (33 percent), pasteurized human milk (14 percent) and raw human milk plus formula (16 percent) than the babies given raw human milk (10 percent).[14] This point needs to be emphasized. Babies given raw human milk had the lowest rate of infection; babies given pasteurized human milk plus formula (which is the standard of care) had the highest rate of infection.

In another study, very low birth weight infants had significantly more rapid weight gain when fed their own mother's untreated milk compared to babies fed pooled pasteurized mother's milk. The authors speculated that the poorer results from pasteurization were due to the fact that heat treatment destroys heat-labile enzyme lipase.[15]

Mother's milk should be frozen, not pasteurized. But almost all milk banks pasteurize to 144.5 degrees Fahrenheit. Hospitals then charge four to six dollars per ounce for breast milk. In order to sell the milk to hospitals, the milk must have a certain protein, fat, lactose and calorie profile calculated by the "milkoscan FT 120."[13] The milk is available only by prescription and mostly for premature infants.

Lori Feldman-Winter, a professor of pediatrics at Cooper University Hospital in Camden, N.J., who was quoted on many webstories related to the study, says that "greater support from doctors, hospitals and employers would help more mothers breast-feed their own babies."[6]

That topic is a story in itself. One thing is certain, all health professionals must be involved in actively promoting a mother's right to nurse her baby *and* providing information on appropriate healthy alternatives, whether raw human breast milk or homemade formula based on raw milk. Let's remember why breastfeeding is so important: because breast milk is *raw* milk, teaming with rich biodiversity.

Sylvia Onusic, PhD, CNS, LDN, a licensed nutritionist, writer and researcher, spoke at Wise Traditions 2013 *on "Traditional Foodways of*

Slovenia." She is an active contributor to the journal, Wise Traditions *and hartkeisonline.com. She holds a BS in home economics, foods and nutrition education, an MS in the field of health administration and policy, and a PhD in public health education. She completed the certified nutrition specialist credential in December 2012. Sylvia is a board certified nutrition specialist (CNS) and licensed dietitian nutritionist (LDN), as well as a member of the American College of Nutrition. While a Fulbright Scholar in the Republic of Slovenia in the field of public health, she completed research at the National Institute of Public Health, and later was employed at the Ministry of Health for six years. She can be reached at sponusic@gmail.com.*

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SLOVENIAN ELEMENTARY SCHOOL STUDENTS COOK ACCORDING TO RECIPES OF THEIR GRANDMOTHERS

Before her May culinary tour, Taste of Slovenia, Sylvia Onusic joined Dr. Janez Bogataj for the final round of the Slovenian children's cooking contest. This year's finale was held May 15, 2013 at the most famous restaurant in Slovenia.

The judges included top national personalities: Chef Janez Bratovz, the main mentor of the project and famous chef; Dr. Janez Bogataj, expert in traditional food; Tomaz Kavcic, famous chef; Stane Omerzu, mentor from the area of fishing from the Ministry of Agriculture; Tantjana Butul, food author and representative from Slow Food; and Karina Cunder, editor of the magazine "Open Kitchen."

The contest was a national event and all elementary and middle schools students were eligible. In the final round, teams of six students worked together to fashion their culinary dishes. The teams were coached and mentored by home economics teachers, other teachers, chefs, and parents. Awards were given at each level. The final prizes included ski trips, other vacations, computers, cell phone, CDs gift certificates for restaurants, clothing, etc. and the grand title of "best culinary team."

The Weston A. Price Foundation will be one of the contest sponsors in 2014!

Sylvia Onusic, Anka Peljham, head of the project "Cooking Kids," and director of the Society for the Culinary Education of Children, with friends at the cooking contest finale.

Students scurry to finish their dishes before judging.

RAW MILK UPDATES by Pete Kennedy, Esq.

MINNESOTA – MIKE HARTMANN

On October 29 Sibley County District Court Judge Erica H. McDonald dismissed five criminal charges brought by the state of Minnesota against Gibbon dairy farmer Mike Hartmann for violations of the Minnesota food and dairy code. Two of the charges arose from evidence seized during a December 4, 2012 stop of Hartmann's vehicle by a state trooper; the other three came from the execution of a search warrant by Minnesota Department of Agriculture (MDA) officials on January 9, 2013 at Hartmann's farm (see *Wise Traditions* Spring and Fall 2013 issue for more on Hartmann).

The key to the dismissal of the charges was Judge McDonald granting a motion to suppress any evidence obtained during the vehicle stop by state trooper Joseph Heyman, who testified that he initially stopped Hartmann's truck because he did not see a rear license plate on the truck and the truck appeared to the state trooper to be a commercial motor vehicle that did not have the required Department of Transportation markings or number. Heyman subsequently conducted three warrantless searches of the vehicle during the stop, seizing raw milk and raw cheese from Hartmann's truck at the instruction of MDA; the discovery of the food led to the granting of the warrant for the January 9 search on the Hartmann farm.

In granting the suppression motion filed by Hartmann and his attorney Zenas Baar, Judge McDonald held that while the initial stop was legal, Heyman's searches of the truck were not because there was no probable cause that Hartmann had committed any crime. The state trooper admitted that he quickly discovered after the stop that there was a rear license plate on the vehicle. The judge found that Hartmann's truck was not a commercial vehicle under Minnesota law and therefore that any state statute allowing for spot checks of commercial vehicles was inapplicable. Judge McDonald ruled Heyman "impermissibly extended the scope and duration of the stop."

Since it was the illegal search of the truck that led to the execution of the search warrant on the Hartmann's farm, the judge also held that any evidence obtained from the January 9 search was inadmissible as evidence. With the state having no other evidence on which to rest any of the criminal charges against the farmer, MDA is still searching for a way to put Hartmann out of business—something the department has been unsuccessfully looking to do for many years. There is still a remaining charge against the farmer for a probation violation in October 2012; Hartmann had received six months' probation for pleading guilty to two misdemeanors for violations of the state food and dairy code. The problem for MDA is that the probation violation charge is also based on evidence illegally obtained by Heyman during the vehicle stop. The Minnesota Constitution gives the farmer the right to sell and peddle the products of the farm; MDA needs to respect this provision and stop going after farmers like Hartmann. The hundreds of families currently obtaining food from the Hartmann farm would say the same.

SOUTH DAKOTA

On November 12 the South Dakota Legislative Rules Review Committee (LRRC) approved raw milk regulations issued by the South Dakota Department of Agriculture (SDDA). The LRRC had rejected a prior attempt by the department to approve the proposed regulations (see *Wise Traditions* Summer and Fall 2013 issues for background); but this time the committee signed off on the rule because SDDA had complied with the necessary procedural steps it was required to take for approval. LRRC Chairman Rep. Timothy Johns admitted that he had received a foot high stack of emails opposing the regulations but the committee's position was that its responsibility is not to judge the worthiness of the rules but only whether the department had followed the proper procedures in issuing them.

SDDA was wasting no time in implementing the regulations; Agriculture Secretary Lucas Lensch announced that the rules would be going into effect on December 11, 2013. Lensch said he had received dozens of requests to postpone implementation of the rules; despite South Dakota law giving government agencies the discretion to delay implementation of a regulation, Lensch rejected the requests, claiming that "to delay the rules puts public health and safety at the back of the line, and that has never been our intent." Opponents of the regulations have considered going to the legislature to get a bill passed that would effectively overturn the new rules. The fallout from the approved rules was already taking place. Black Hills Milk LLC, a long-time raw milk dairy, notified their customers that it would no longer be selling raw milk and would instead be changing over to a herdshare program in order to be outside SDDA's jurisdiction.

ILLINOIS

The Illinois Department of Public Health (IDPH) had been leading a dairy workgroup to develop recommendations for raw milk regulations (see Wise Traditions Summer and Fall 2013 issues for background). IDPH officials have disbanded the workgroup and are moving on to the next step in the rulemaking process.

In a November 21 email sent to the members of the workgroup, Molly Lamb, chief of IDPH's Division of Food, Drugs and Dairies stated that the workgroup would be releasing a "summary of comprehensive recommendations"

that would be used by IDPH to write proposed raw milk regulations. In her email, Lamb included a draft of summary recommendations from IDPH that were far different from what raw milk producers and consumers in the workgroup had been proposing.

The raw milk advocates who comprised a majority of the workgroup had been supporting a two-tier system in which one tier would allow unlicensed, unregulated on-farm sales of raw milk and another tier would support licensed sales off the farm; the IDPH recommendations call for inspection, licensing and testing on both tiers. The department's recommendations would also prohibit distribution of raw milk through a herdshare agreement, buyers club or CSA without licensing and inspection.

Donna O'Shaughnessy, a raw milk producer on the workgroup, said its disbanding was the same as firing the raw milk supporters. O'Shaughnessy pointed out that in the nine months the workgroup met it was never even discussed what the requirements would be for tier-two producers and that IDPH ignored the will of the majority of the group to have no licensing or registration mandate for on-farm sales; throughout the time the group was meeting, IDPH's minutes from the meetings indicated there was consensus among group members for licensing on-farms sales when there never was. IDPH's goal is to issue the proposed raw milk rules in March 2014. If adopted, the rules would go into effect sometime next summer or fall.

MASSACHUSETTS – LAWTON'S FAMILY FARM

The future of Lawton's Family Farm (Lawton's), one of the oldest farms in the U.S., was threatened by the town of Foxborough's Board of Health. Lawton's is one of about thirty licensed raw milk dairies in the state of Massachusetts; raw milk has a great track record for safety in the state with no cases of foodborne illness linked to raw milk consumption going back to at least the 1990s. Despite this, the Foxborough Board of Health proposed raw milk regulations threatening to put the dairy out of business; under Massachusetts law, towns can impose stricter requirements than state law prescribes on raw milk production and sales or even ban the product outright. The initial regulations proposed by the Board of Health would have in effect amounted to a ban on the sale of raw milk in Foxborough. The regulations contained among other requirements, that:

1. Raw milk dairies test their milk on a weekly basis; no law in the U.S. requires that raw milk dairies test more frequently than once per month.
2. If the dairy fails any test, its sales could be suspended for up to thirty days. The required tests include standard plate count, somatic cell count, and coliform counts.
3. The producer must submit a written plan for the dairy's standard operating procedures each year for approval by the Board of Health.
4. The dairy would be required to maintain a list of the names, addresses, phone numbers and emails for each customer and make those available to the Board of Health upon request.
5. Obtain product liability insurance with an aggregate of up to three million dollars at a minimum. No state currently requires a raw milk producer to obtain product liability insurance; most insurance companies that do offer raw milk product liability insurance will not provide an aggregate over two million dollars.

The Board of Health was scheduled to vote on the proposed regulations November 25 at a public hearing but postponed the hearing indefinitely when a crowd of nearly twice the capacity of the meeting venue showed up to oppose the regulations. Shortly after the postponement, the board amended the proposed regulations, taking out some of the more onerous clauses on testing and punishment for failed tests, but the product liability insurance and customer list requirements remain.

The Lawton family has been farming in the area since 1732. Terri Lawton, the principal operator of the farm, was at one time a dairy inspector for the Massachusetts Department of Agricultural Resources. The dairy has had its sales suspended twice for short periods of time for tests above the legal limit but has never been accused of making anyone sick. Whatever the reasons for the proposed regulation, the actions of the Foxborough Board of Health are more evidence of the bias public health officials have against raw milk and their desire to make raw milk sales go away.

The growth in the demand for raw milk, and the growing public acceptance of the product as a food everyone should have the right to consume, makes the public health sector position increasingly a minority view.

For the latest developments on raw milk issues, go to www.thecompletepatient.com. Those who have not joined the Farm-to-Consumer Legal Defense Fund are encouraged to do so. Membership applications are available online at www.farmtoconsumer.org or by calling (703) 208-FARM (3276); the mailing address is 8116 Arlington Blvd, Suite 263, Falls Church, VA 22042.

RURAL VERMONT'S RAW MILK SUMMIT A SUCCESS!

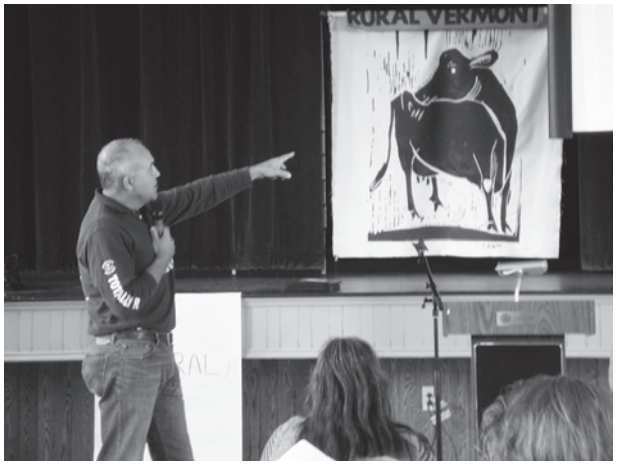
Raw milk producers and advocates filled the Bethel Town Hall on Sunday, October 27 for Rural Vermont's Raw Milk Summit, a day spent sharing information, reviewing and defining goals, and planning for the upcoming legislative session when Rural Vermont will work to pass a new raw milk bill.

After a morning welcome and review, Mark McAffee of the Raw Milk Institute gave the keynote address. He spoke of his dairy farm in California, of the challenges they've faced in his home state, and how the growing demand for raw milk is creating jobs and increasing health. What he emphasized the most, though, is the need for education. "Don't fight, teach," he told the farmers at the summit. Educated customers create and strengthen the raw milk market, and so it is important for raw milk producers to connect and educate—to be allies, not competitors.

Over sixty cow and goat milk producers came together to share their experiences of selling raw milk under the current law and what they are hoping the new bill will address. During the afternoon work session, great discussion was had on aspects of a new bill, giving farmers a chance to speak on what is important when it comes to raw milk legislation. Consensus was reached on many topics, giving Rural Vermont solid ground to stand on as we continue to reach out to farmers and consumers across the state as we prepare for the legislature.

Why work for raw milk legislation? It's not just because it is a live food that supports our digestive health, because people deserve the right to make their own choices about what they consume, or because in our fragile economy it is a growing market. Raw milk creates a community where customers know their farmer, where, as Mark McAffee puts it, customers walk up and give farmers a hug and a kiss on the cheek for the milk they produce. By design, raw milk creates a system of farming rooted in animal and environmental health, which in turn creates a healthy community.

In the spirit of community, the summit ended with a milk mixer complete with apple pie and homemade raw milk ice cream. Farmers and community members ended the day with delicious dessert. As we move forward on raw milk legislation, we look forward to hearing from more farmers across Vermont so we can introduce a comprehensive bill with the biggest benefit for the most people.



Mark McAfee addresses participants in the Rural Vermont Raw Milk Summit.

FORTY DOWN, ONLY TEN TO GO!

Year by year, we liberalize raw milk laws in individual states. For example, in 2013, we had victories in three states: Arkansas legalized raw milk sales, and cow shares became legal in North Dakota and Michigan.

States where raw milk is still not available either for sale, by cow-share and herd-share or as pet milk include Hawaii, Nevada, Montana, Iowa, Louisiana, West Virginia, Maryland, New Jersey, Delaware and Rhode Island. We expect to see legislative efforts this year in Louisiana, Maryland and possibly New Jersey.

If we can legalize raw milk sales (or at least cow-shares or herd-shares) at the current rate of two or three per year, we will have raw milk legal in all fifty states within five years!

A big thanks to all the organizers on the local level who have worked for the legalization of raw milk, and to the Farm-to-Consumer Legal Defense Fund who has provided legal defense, legal advice and overall coordination for this important campaign. Most importantly, we recognize and appreciate the hard work and dedication of the dairy farmers!

Healthy Baby Gallery

Tobin Sorenson, pictured here at five months, was born seven pounds, thirteen ounces, on May 26, 2013 to parents David and Anne Sorenson. Since day one, when someone first meets Tobin, they inevitably comment on his beautiful, healthy coloring, cheerful, pleasant demeanor, and robust size (twenty-one pounds and twenty-seven inches at five months). During pregnancy, mom followed the full GAPS diet, and she continues to follow the WAPF guidelines for healthy eating while breastfeeding. We are so grateful to God for the knowledge and wisdom we have gained through the Weston A. Price Foundation!

Fourteen-month-old WAPF baby, Asa Garner, pets Oprah Henfry at the *Wise Traditions* conference while mother Ashby Underwood and backyard chicken expert Pat Foreman look on. Asa was born at home as was his brother Finneaus, now seven years old. Asa was a full two pounds heavier at eight and one-half pounds after mom embraced the WAPF diet for seven years. His mother reports that Asa is a gentle soul, adores animals and all creatures, and fills the Garners' heart and house with joy! He holds especially good eye contact and has a wonderful blend of playfulness and focus. Asa drinks four gallons of raw milk a week (with his family!), doesn't watch TV, and hikes in his moccasins around his home in the woods of the north Georgia mountains. Asa's parents, Ashby and Chad, are Rolf practitioners, operate two studios, and are now homeschooling so that Asa and his big brother can nurture the deepest roots possible.

Kateri Victoria Stein was born October 2011 to Missouri WAPF chapter leaders Heather and Joel Stein. She was born at home after a wonderful five-hour labor. She weighed a hearty nine pounds, six ounces at birth! During pregnancy, Heather ate lots of nourishing foods such as bone broth, pastured meats, raw liver, eggs, butter, raw milk, seafood (including dried fish eggs), and organic fruits and vegetables. In the postpartum days, she recovered with the help of pig feet broth, a traditional postpartum elixir. Now two years old, Kateri enjoys all the same foods mom did during pregnancy—especially fermented cod liver oil! She loves meats (including homemade liverwurst), stews, fruits, vegetables, and nuts. She has a robust appetite and could never be called a picky eater. Kateri's sisters, Lucia and Mary Helen, love her very much and the Steins are all grateful to God for this newest addition to the family!

Please send photos of healthy babies to Liz Pitfield at liz@westonaprice.org.
Photos must be labeled with the baby's first and last name and accompanied by an email with text.

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CHAPTER RESOURCES

Resources for chapter leaders can be accessed at http://www.westonaprice.org/local-chapters/chapter-resources, including our trifold brochures in Word format, chapter handbook, and PowerPoint presentations.

LOCAL CHAPTER LIST SERVE

Thank you to Suze Fisher, a chapter leader in Maine, for setting up a local chapter chat group. New chapter leaders can sign up at http://groups.yahoo.com/group/wapfchapterleaders/

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Sally Fallon Morell with members of the WAPF enjoy a delicious farm-fresh meal at Local Roots in Roanoke, Virginia. The dinner preceeded the HPR III Training event September 24, 2013 in Roanoke. Seated (L to R) Amy Adams, Carly Coleman; Standing (L to R) David Grimsley, Diane Elliot, Frank Wu, Sally Fallon Morell, Ben Coleman, Jody Blum Franko, Eva Jo Wu; Back row (L to R) Agatha Grimsley, Candice Coffin and Grace Wood.

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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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THE *WISE TRADITIONS 2013* MONDAY FARM TOUR

Tour leader and WAPF executive director Kathy Kramer gives instructions while tour speakers Jerry Brunetti looks on and Will Winter raises a toast with raw milk.

View from the milking parlor at the Johnston Family Dairy selling raw milk as pet food. The entire family helps with the twice a day milking process.

Sarah Robertson of Treffynnon Farm welcomes the tour, but the llamas are not so sure. The barnyard was a fast food restaurant for every predator in the county until the llamas came on duty!

Enjoying an Avalon Catering lunch at Carrell Farms after seeing and learning about their alpacas, Asian water buffalo, and an endangered species breeding program with 25 species of parrots.

Melbourne, Australia chapter leader Arabella Forge enjoys a peaceful moment.

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REPORT FROM VICTORIA SCHNEIDER, CO-CHAPTER LEADER WITH JORGE CATALAN IN SAN MIGUEL DE ALLENDE, MEXICO

Each Sunday our San Miguel de Allende, Mexico Chapter meets at the Red Tent for our Barbacoa Breakfast. We enjoy delicious slow-roasted sheep meat tacos, fresh tortillas and rich soup served with pipping hot fresh tortillas. On the tables are chopped onions, cilantro, fresh limes, oregano and great hot sauce for our condiments.

We have been holding these meeting for about a year and each Sunday we gather, build friendships and share information. Jorge and I felt this was a good way to build our WAPF community and support a local family who runs the restaurant. Sometimes we are two and other times we are fifteen; it's always a great fellowship experience.

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Burlington and Oakville: Angela Kang (905) 582-3693, angelakang7@gmail.com
Cambridge & Kitchener-Waterloo: Christine Kennedy cakennedy@rogers.com, www.butterbelle.ca
Eastern Ontario: Trisha Morris (613) 985-6194, trishamorris@live.com
Grey-Bruce: Elisa Vander Hout (519) 369-3578, csf@bmts.com
Hamilton: Ken & Claire Dam (905) 580-1319, kenandclaire@gmail.com
Kingston: Sue Clinton & Bob Clinton, DDS (613) 376-6652, sue@doctorbob.ca, wapfkingston.org
London: Donna Costa (519) 951-8182, donna@bowenworksinlondon.com
Minto/North Wellington: Margo McIntosh (519) 338-2683, info@rawmilkconsumer.ca
New Liskeard: Michel & Angel Dupuis (705) 647-6070, twochiro@ntl.sympatico.ca
Ottawa: Gail Davis (613) 238-2782, gdavis@ncf.ca, Pascal Desjardins (613) 728-0662, slo2burn@hotmail.com, http://nourishingottawa.com
Tillsonburg: Crystal and Stephane Laverdiere, DC (519) 688-4175, laverdieres@rogers.com
Toronto (Downtown): Patricia Meyer Watt (416) 653-7112, TorontoWAPF@gmail.com
Toronto Area–West: Corey Evans, (905) 608-9314, info@healthisfreedom.net, www.healthisfreedom.net

PEI
Queen County: Contessa Scott (902) 213-8270, contessa.1@hotmail.com

QC
Saint-Lambert: Eric Lepine & Roanne Proctor (450) 812.7553, thewapfmontreal@gmail.com

SK
Good Spirit (Canora/Preeceville): Janeen Covlin (306) 547-4252 eatreal@coolspringsranch.ca & Barb Fraser (306) 563-5477, onranch@acncanada.net
Regina: Sandra Brandt (306) 359-1732, brandt.s@sasktel.net, WAPFRegina.wordpress.com
Saskatoon: Michele Kralkay, DNM, RHN (306) 477-4480, food.traditions.saskatoon@gmail.com, food-traditions@yahoogroups.com

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Valle de Bravo/Temascaltepec: Martha Frances Goodman temasvallewapf@gmail.com

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Nijmegen: Mike Donkers 31 6 4275 3107, westonpricegelderland@gmail.com, gelderland.westonprice.nl
Province Utrecht: Susan Vroemen 0031 6262 70722, info@healingfoods.nl, www.healingfoods.nl, https://www.facebook.com/healingfoods.nl
National forum: www.westonprice.nl

International Chapters

NEW ZEALAND
Auckland, North & West: Alison Ellett (09) 420-8548, alison@wapf-auckland.co.nz, www.wapf-auckland.co.nz/
Auckland, South & East: Caroline Marshall 64 9 528 7062, caroline@culturedkitchen.co.nz
Christchurch: Carolyn-Rae Searle 64272733187 03-377 8511, thrive@xnet.co.nz
Dunedin, South Island: Michelle Wilkie 064 3 488 6061, chellec@clear.net.nz
Hamilton: Michelle Macdonald, 64 7829 3480, jaydenandmichelle@xtra.co.nz
Invercargill: Sherry Elton (64) 3213 1156, sherry@thecroft.net.nz, www.thecroft.net.nz
Nelson City & Tasman District: Samantha Gentry 0274505940, sam.gentry@desirefitness.co.nz
New Plymouth: Ian Haldane 06 659 7478, zenian@zenian.co.nz
Palmerston North: Susan Galea 646 324 8586, susangalea@hotmail.com, www.realmilk.co.nz
Porirua: Sarah Holloway 02 2315 2309, sarahholloway@gmail.com
South Canterbury: Carol Keelty 03 6866 277, bckeelty@xtra.co.nz & Inez Wilson inezmwilson@xtra.co.nz
Tauranga: Karen Niven (07) 548 2878, karen.niven@xtra.co.nz
Wellington: Ian Gregson 64 04 934 6366 wapf@frot.co.nz & Deb Gully (04) 934 6366, deb@frot.co.nz, www.wapfwellington.org.nz
NZ Resource List: Ian Gregson and Deb Gully, www.frot.co.nz/wapf/resources.htm

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Herefordshire: Sally Dean 01432 840353, sally@aspenhouse.net
Hertfordshire: Philip Ridley 01442 384451, philridley@hushmail.com
Kent: Keli Herriott-Sadler 01732 354 527, keli@herriott-sadler.co.uk
London: Wise Traditions London, Festival for Traditional Nutrition Phil Ridley 01442 384451, westonaprice.london@gmail.com, www.westonaprice.org/london, www.meetup.com/westonaprice-london
East London: Deborah Syrett 020 8518 8356, medical.herbalist@ntlworld.com
North London: Rebecca Rogers 004420 8446 0080, Rebecca.jayne.rogers@gmail.com, https://www.facebook.com/groups/251481144947839/
London: Wandsworth Borough: Paolo Donati 0044 7825 298 573, paolo.donati@gmail.com, www.the-italian-nutritionist.com
Ryde, Isle of Wight: Anuradha & Peter Kowtha +44 (0) 1983 566574, kowthafamily@yahoo.com
UK resource list: www.naturalfoodfinder.co.uk

SCOTLAND
Edinburgh: Frances Bavin 07505 053333, frances.bavin@gmail.com, http://www.meetup.com/westonaprice-edinburgh

WALES
North Wales: Ben Pratt 07952 555811, info@naturalfoodfinder.co.uk, www.naturalfoodfinder.co.uk

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CA

Farm raised for your dining pleasure "orchard" chicken eggs, "pond" duck eggs, grass-fed geese, grass-fed 'buttered' beef raised by Jersey cows, fruits and vegetables hand raised with loving care in northern California. stablefood@gmail.com (707) 279-1299 stablefood.blogspot.com http://www.facebook.com/stablefood.

CO

Western Colorado. Hay, peaches & oats. Grown with minerals. NO insecticides. NO herbicides. May: wheat/alfalfa hay. August: alfalfa hay, Red Globe peaches, oat grain. (970) 323-8684.

DC

CSA: Hi-Brix, nutritionally dense, biodynamically grown kitchen vegetables, grass-finished beef, pastured pork, broilers & eggs. Openings for 2013 season in DC Metro area. Contact Allan Balliett, info@freshandlocalcsa.com (304) 876-3382, www.freshandlocalcsa.com.

FL

100% grass-fed dairy and beef. Soy-free woodland pork. Soy-free pastured broilers and eggs, fermented foods, info@marandofarms.com.

IL

Milk from 100% grass-fed Jersey cows, also a variety of raw milk cheeses, grass-fed beef, pasture raised broilers, no-soy eggs, no-soy pork, honey and a variety of fruits & vegetables seasonally. Roodhouse, IL. Steve & Cindy Mansfield (217) 589-4554.

Nadig Family Farm, DeKalb/Cortland, IL. We sell Raw Milk from pastured Guernsey Cows, grass-fed beef, grass-fed lamb, pastured chicken, pastured turkey, and pastured chicken eggs. Also, organically fed pork and rabbit. We have wool, angora, and yarn from our farm. Visit our web site at www.nadigfamilyfarm.com or call John or Charlotte at (815) 748-3782.

IN

Crystal Waters Farm, LLC. Raw milk, colostrum and beef from grass-fed Jersey cows. Also real honey, bees wax candles and beekeeping supplies. Affordable quality. We're located along highway 36, 45 miles west of Indianapolis. Call anytime! Stevie King (765) 739-8334 (leave message).

Raw milk cheeses, grass-fed beef, veal. Also, a variety of fresh raw dairy products available as pet food. 100% pasture fed cows. NO hormones, pesticides, antibiotics used. **Will ship.** Available from the Yegerlehner's The Swiss Connection. (812) 939-2813, www.swissconnectioncheese.com, Clay City.

MA

Many Hands Organic Farm in Barre, MA. Produces certified organic lard from pasture raised pigs fed Nature's Best Organic Feeds, whey and pasture. $20/quart in recycled yogurt containers. **We ship** in the US. Order at http://mhof.net/meat/index.php. (978) 355-2853; farm@mhof.net.

Misty Brook Organic Farm raises soy-free pastured pork, broiler chickens, and eggs. Beef, veal, and dairy are 100% grass-fed. Milk and cheese are from no-grain Jersey cows. Vegetables are grown with draft horses. Grains are stone ground. www.mistybrook.com (413) 477-8234.

MD

100% soy-free chicken, eggs, pork and beef. Chicken livers, chicken feet and heads. Bacon and sausage. 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 Thurs-Sat 10-6 or by appointment. P. A. Bowen Farmstead, 15701 Doctor Bowen Road, Brandywine, MD. (301) 579-2727, pabowenfarmstead.com.

Grass-fed Angus beef (no grain), free range eggs, pastured chicken & turkey. Liver, chicken feet, organ meats & bones, food grade heritage grinding corn. Pick up Potomac or Buckeystown. Our cattle & poultry are always on organic pasture & receive all organic feed, no hormones, antibiotics, or animal parts. We grow our own hay & grains & grind our own poultry feed. Quality organic products since 1979. (301) 983-2167, nicksorganicfarm@comcast.net, www.nicksorganicfarm.com

MN

Farm On Wheels offers animals raised Green Grass-fed & Certified Organic. Nutrient dense beef, lamb, chicken, eggs, Turkey, goose, duck, pork, lard, butter. No corn or soy. Farmers Market year around in St. Paul, Prior Lake, Northfield, Just Food. Linda (507) 789-6679, www.cannon.net/~farmonwh

Pork & Plants Heritage Farm located in SE MN. Heritage red wattle pigs, chickens, ducks, turkeys and eggs. All grain from our organic farm to insure quality soy-free feed. Pasture based with exceptional taste. Contact eric@porkandplants.com or (507) 689-4032, www.porkandplants.com.

New Jersey Buying Club. Grass-fed Jersey milk, goat milk, sheep milk, camel milk. Grass-fed beef, pork, lamb, fish and soy-free chicken and eggs. Fermented foods and treats. **Will ship** or deliver (717) 806-0392 ext 1. Miller's Biodiversity Farm.

NY

New York Buyers Club. Certified organic grass-fed dairy products from Jersey cows. Eggs from pastured chickens. Grass-fed beef, pork & chicken. Fermented foods, Green Pasture products, soaked & dried nuts & raw honey. **Will ship**. (717) 768-3437. Pleasant Pastures.

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NY
Raw milk from Dutch Belted cows organic certified farm, grass-fed. Call us for other products. Ana Lups, Pleroma Farm, Hudson, NY (518) 828-1966.

OH
Sugartree Ridge Grassfed. Openings in a 100% grassfed herdshare with 9 delivery sites in the Cincinnati area. No-grain, no-silage. Eleven cows (cross between Jersies, Guernseys, Brown Swiss and British White) grazed year-round on sixty acres rotating through thirty paddocks (which are allowed to grow for sixty days between grazings and are spread with organic, Albrecht-based mineral supplements). Nutrient-dense milk, family-friendly farming and holistic stewardship. 6851 Fair Ridge Road, Hillsboro, OH 45133-95458 or Cincinnati area: Bill & Marylou Wilson (513) 583-9393.

Three Moon Farm, Williamsport OH. We raise grass-fed beef, pasture raised chicken, turkey & eggs. We also offer raw honey from our hives. For more information please check us out atwww.threemoonfarm.com or call Kelly at (740) 253-9029.

OR
Dairy Goats within city limits of Corvallis, Oregon: Nubian and Oberhasli Dairy Goats. Occasional animals and animal products available. Contact herd owner by e-mail for more information. Raspberry@iinet.com.

PA
Bareville Creamery 100% grass-fed. We offer raw traditionally cultured butter from our grass-fed cows. We **will ship** to you or visit our farm to pick up. Daniel & Katie Zook, Leola, PA (717) 656-4422.

Carlton Farms is certified organic and biodynamic. We offer pastured chicken, eggs and lamb, and wheat, rye, gourmet herb and flower salts. **Shipping available**. Contact (570) 396-0886, info@CarltonFarms.net. Visit us on Facebook or at CarltonFarms.net.

Fresh grass-fed raw milk, cream, butter, yogurt & cheese - veal, soy-free poultry, free range eggs, grass-fed beef and lamb. Frozen meats also available. We **will ship**. You are welcome to stop in or give us a call. Mark & MaryAnn Nolt (717) 776-3417.

Creswick Farms. Dedicated to raising healthy, happy animals—lovingly cared for just as Mother Nature intended—which provide high-energy, nutritious and delicious food sources for health-conscious individuals. No antibiotics, steroids or GMOs ever fed to our animals! (616) 837-9226, www. CreswickFarms.com.

Grass-fed lamb, pastured Tamworth pork & piglets, pastured chicken, honey, Sheep Camp, farm tours, Adopt-A-Sheep & more. Visit Owens Farm Sunbury, PA, www.owensfarm.com (570) 286-5309, info@owensfarm.com.

Grass-fed organic raw milk and dairy food: 100% grass-finished beef and lamb, pastured pork, chicken and turkey, wild Alaskan salmon, fermented vegetables, raw honey, maple syrup and more. Long Island drop. Paradise Pastures, Paradise, PA (717) 687-8576.

Naturally raised grass-fed beef available. Whole beef, half or quarter beef, available in Oct. or Nov. Also ground beef & limited cuts available anytime. No chemicals or hormones are used on our beef. (717) 789-4602 ext.2 leave message please.

Organically managed 100% grass-fed dairy from Jersey cows. Eggs from pastured chickens (soy free available) Grass-fed beef, pork, chicken & rabbit. Soap made with lard from pastured pork, fermented veggies, crispy nuts & raw honey. **We ship**. Pleasant Pastures (717) 768-3437.

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. Wil-Ar Farm, Newville, PA (717) 776-6552.

The greatest fine art of the future
will be the making
of a comfortable living
from a small piece of land.
Abraham Lincoln

Raw milk cheeses from organically managed, 100% grass-fed Jersey cows. Retail & wholesale. Prices start at 5.00/pound, **mail order** cheese. Raw milk & pastured eggs available. Eastern PA, 15 minutes N of I78, Hilltop Meadows Farm, 153 Martins Rd. Pine Grove, PA 17963 (570) 345-3305.

VA
Cow/Herd shares available, with Member in Local Kine (M.I.L.K.) Project in Fauquier County at Western View Farm, 2028 Laws Ford Rd., Catlett, VA 20119. For information call Martha Bender (540) 788-9663.

Salatin family's Polyface Farm has salad bar beef, pigaerator pork, pastured chickens, turkeys and eggs, and forage-based rabbits. Near Staunton. **Some delivery available**. Call (540) 885-3590 or (540) 887-8194.

Virginia Buyers Club. Certified organic grass-fed dairy products from Jersey cows. Eggs from pastured chickens. Grass-fed beef, pork & chicken. Fermented foods, Green Pasture Products, soaked & dried nuts & raw honey. **Will ship**. (717) 768-3437. Pleasant Pastures.

CANADA, QC
Attracted to becoming part of an organic agri-diversified farm? We raise large animals & birds, vegetables, plus have a bakery & our own flour mills. Intentional community projects are in development, & are diversified. Interested? Contact www.fermemorgan.com.

Crafts

100% sheeps wool throws, made with wool from organically managed sheep, natural colours, no dyes or chemical cleaners use48" by 72" throws. We also have raw wool. Call for more info. Will ship. Daniel Stoltzfus (717) 768-3437 ext 1

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 Megan Pisciotta Greene; handmade quilts. Exclusive source of Nourishing Traditions posters. Saturday farm tours. Store openThurs-Sat 10-6 or by appointment. P. A. Bowen Farmstead, 15701 Doctor Bowen Road, Brandywine, MD. (301) 579-2727, pabowenfarmstead.com.

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DVDs

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!**

Share your passion for food with friends and family! The Diet for Human Beings affirms our human requirement for fats, with less emphasis on starchy carbs. "An Hour To Watch – 30 Days To Try – Your Life Will Never Be The Same" www.ondietandhealth.com.

Employment Opportunities

Organic Deli & Bistro in northern Minnesota is looking for a dedicated, creative, WAPF-inspired cook/chef. Gluten-free cooking skills are also required. Employment or Leasing option. Please e-mail resume to: evergreencottage@frontiernet.net or call (218) 365-2288 for more information.

Seeking Farmer & Property Manager in La Plata, MD: Newly built two-story tenant house with 2 bedrooms, 1.5 baths on site and available for occupation Fall 2013. Approximately 50+ acres of farmland available for agricultural use (holistic farm projects welcomed). Property management would include basic maintenance of farm owner's non-agricultural land (approximately 12 acres). Call (504) 451-5625 for details.

Semi-retired couple (she writes and teaches about women's health; would love to teach reading and writing to teens who farm part of the day. She is also an excellent cook. He prunes trees, repairs drip irrigation.) seeks caretaking positions and/or to relocate to a farming community. Need distance from cell towers and WiFi. Ideas? Please phone (505) 820-0773.

A small group of WAPF members is launching a real-food restaurant chain, with the first location in Dallas, TX. To be added to our mailing list, please email Katharine Spehar at kspehar@barefooteatery.com

Healthy Food Products

BEEF. All natural grass-fed Texas Longhorn. Heat & serve beef shipped in 28oz cans, cases of 12. Buy direct save with 50lb. box grind. Halves cut & wrapped. Hot dogs. **Will ship**. Certified Texas Longhorn Beef, 35000 Muskrat, Barnesville, Ohio 43713 (740) 758-5050, www.head2tail.com.

LACTO-FERMENTED VEGETABLES, cultured, 100% organic, by Immunitrition. Three delicious, raw blends – Garden, Sea & Sunshine. **Will ship** throughout USA via UPS. Available in 32 oz. jars or try our Cultured Veggie Taste Tester with bonus pumpkin oil & sea salt. (877) 773-9229, www.culturednutrition.com.

Healthy Products

TRADITIONAL HEALTH FIRST. Offering all Green Pasture's products including Blue Ice Fermented Cod Liver - Fermented Skate Liver Oil - X Factor Gold High Vitamin Butter Oil both in liquid and capsules, Infused (with FCLO) Coconut Oil and Pure Indian Foods Ghee. **Free shipping.** Email or call for information about shipping, referrals, auto resupply, and any general questions or information about these superfood products. Visit THF on Facebook. To Order: email john@traditionalhealthfirst.com or Call JOHN DELMOLINO, Hadley, MA, (855) 646-9263.

Do you love organic products? NYR Organic, of U.K.-based Neal's Yard Remedies, offers award-winning, luxurious organic skin care, beauty and well-being products and a profitable home-based business opportunity. To learn more, email diana.gwen.gibson@gmail.com or visit http://us.nyrorganic.com/shop/DianaGibson.

> If people let government decide what foods they eat and what medicines they take, their bodies will soon be in as sorry a state as are the souls of those who live under tyranny.
>
> *Thomas Jefferson*

FLUORIDE FREE AMERICA: Mission: Enhancing communication between individuals and organizations to exchange information and create strategies to end water fluoridation. www.facebook.com/waterliberty * Twitter.com/FluorideFreeAmerica/waterliberty * 70% of Americans are fluoridated. JOIN IN THE EFFORT TO END FLUORIDATION - You have the right to safe drinking water.

VitaClay Chef Smart Organic Multi-cooker. No lead, no aluminum, no chemicals. Makes perfect germinated rice, quinoa, savory stews, soups and nutritious bone broths or steamed fish or veggies. Plus Bonus low temperature yogurt maker! www.VitaClayChef.com Visit us online or call (888) 808-2015.

Homes & Land

200 acre KY farm. near Owenton, 4BR, 31/2BA house built 1996. Pond, pier, dock, spring-fed creek, stock pond, pasture, woods, roads. Excellent hunting: deer, turkey, rabbit, squirrel. $599K. Call Mike (859) 743-6551.

32+ acres diversified farm. Sustainable 20+ cow, Herd Share Dairy business. Beautiful home and cabin on property. Beginning of a fodder system. Small orchard & garden spot. Lovely view of cascade mountains, Grizzle mt., Ochoco range, & Powell Butte. Oregon, (541) 306-1495 email: windyacres26@gmail.com www.windyacresdairy.com.

Beautiful ten-acre Clarkston, Michigan 2,983 sq. ft. farm, 4 BR, 4 bath, great room with built in 300 gallon fish tank, LR, DR, full basement with small apartment and recreation area. Large glass greenhouse attached to Master BR. RO water in kitchen. Large 2 story barn, chicken coup. Land fenced off for pasture, fruit trees and small garden. Many upgrades to house. Call Roland (248) 872-8910, email: randgcantu@aol.com.

Historic Property: "St. Mary's Rectory", est. 1849, 5 acre farm w/ 2 story outbuilding, 6 stall barn, chicken coop + elegant 5 bedroom, 2 bath home w/nearly $200k in upgrades. Close proximity to P.A. Bowen Farmstead & At Last Farm. Less than 30 miles from DC. Matt White, Coldwell Banker, (202) 491-7777/547-3525. www.PRIMEpropertiesMD.com EHO.

Lease RV/Camper space short or long-term. Very wooded, private fenced and gated. Some farm work available. Located in Southwest Pa. Call noon to 8, (724) 447-2726 Off season storage as well as deer hunting available.

Rent all or part of a 190 acre farm in NW Massachusetts. Open land, woodland, sugar bush, sugar shack, barn, pond. Must be organic, biodynamic preferred. Rent negotiable. melodyhillfarm@gmail.com.

Looking for a farm or homestead in Virginia? Work with a 30-year veteran and WAPF member, Keith Hartke. Call National Realty, (703) 860-4600, ext. 444 or email keith@nationalrealty.biz.

Intentional Community

Attracted to becoming part of an organic agri-diversified farm? We raise large animals, birds and vegetables, plus have a bakery and our own flour mills. Our intentional community projects are in development, and are diversified. Interested? Contact John through www.fermemorgan.com.

Eco Farm: Small, farm-based community located near Tampa FL with a mission of sustainable living. WAPF friendly looking for others for direction and help, especially with our small pasture based dairy operation. This year we have reached 400 PPM CO2 in our atmosphere, which makes our chance to prevent climate break-down close to zero (New York Times 5/11). Small, local, farm-based communities may be our only hope; it's ours at www.ecofarmfl.org, (813) 754-7374.

Intern/Apprenticeships

INTERN POSITIONS AVAILABLE at P A Bowen Farmstead, the pasture-based, soy-free, mixed-species farm of Geoffrey and Sally Fallon Morell. Learn every aspect of pastured chickens & eggs, woodland pork; and/or dairy management, milking, cheesemaking and marketing. Interns will also get training in simple food preparation. Seeking willing workers, eager to learn. Possible long-term position for someone skilled in biodynamics and produce production. Southern Maryland, close to Washington, DC. Contact 301-579-2727 or info@pabowenfarmstead.com.

Vermont Farm seeks helpers for 2014. We integrate American Milking Devon cattle, pigs and chickens with growing and fermenting six tons of vegetables. Our grain-free cows support raw milk sales plus butter and cheese making. We focus on selling nutrient-dense foods while eating well ourselves! Learning opportunities include milking, biodynamics, natural livestock care. Positions available April to November, short and long-term. Cabins, food, laundry, Internet access and lots of education. Call Doug Flack, (802) 933-7752, Flack Family Farm, www.flackfamilyfarm.com.

Investors Needed

Launching the creation of WAPF-friendly food outlet for travelers (airports, rest stops, etc.) Seeking individuals with food or restaurant industry experience to assist in preparation of business plan. Looking for support in all domains, especially finance and operations. Retail experience helpful. All contributions of expertise are welcome. Please contact Katharine Spehar at kjspehar@gmail.com.

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Thomas Jefferson to John Jay
August 23, 1785

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The Shop Heard 'Round the World

Dedicated to Helping the Consumer Obtain Nutrient-Dense Foods and Accurate Nutrition Information

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Natural Foods

Natural Foods

Natural Foods

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Natural Foods

Supplements & Super Foods

Personal Care & Dental

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The Shop Heard 'Round the World

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Healthy Products

Travel

Fish That We Eat
Iqaluich Niginaqtuat

This manual by Anore Paniyauraq Jones is the second in a series of three detailing the traditional foods of the Inupiat. The first book in this series about Inupiat foods was *Nauriat Niginaqtuat, Plants That We Eat*, an ethno-botanical manual, long out of print but due to be re-printed in the fall of 2009 by University of Alaska Press. It is 150 pages with black and white photos and sketches.

The second manual, *Iqaluich Niginaqtuat, Fish That We Eat*, provides information regarding the traditional use of fish, their processing, recipes and eating enjoyment. It was compiled from the local traditional fish knowledge of northwest Alaska and was partially funded and placed on the web by the U.S. Fish and Wildlife Service.

The third manual in this series will similarly detail the traditional Inupiat processing techniques and recipes for sea mammals.

Presently there is no funding to support this work. Any suggestions would be welcome. The web link to *Iqaluich Niginaqtuat, Fish That We Eat*, is below. The report is located under the U.S.F.W. Northwest AK section. From here you can read it and/or download and print it. It should be printed double-sided due to the length (341 pages), including 100+color photos, sketches.

http://alaska.fws.gov/asm/fisreportdetail.cfm?fisrep=21

The Shop Heard 'Round the World

Dedicated to Helping the Consumer Obtain Nutrient-Dense Foods and Accurate Nutrition Information

Training

Practitioners

The Shop Heard 'Round the World

Dedicated to Helping the Consumer Obtain Nutrient-Dense Foods and Accurate Nutrition Information

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