

## BOOK REPORT ON FARMACOLOGY BY DAPHNE MILLER

Written by David G. Schwartz, M.D.

Farmacology demonstrates the intricately woven connections between agriculture and health care. The author traveled extensively to visit numerous farms, ranches, gardens, agronomists, biologists, and medical scientists. She allowed her bored, 16 year old daughter to volunteer for 6 weeks on a holistic ranch, which as a result, transformed her outlook and life goals.

Why is this concept relevant, that of connecting farming with health? Our health (or disease) care system is failing miserably when it comes to long-term health outcomes. The technology and chemistry of modern medicine saves lives from emergency situations such as trauma, acute infections, etc. It can treat symptoms and can prolong the dying process, but it largely fails to promote healthy longevity.

In medicine, the ability to sustain a beating heart or to sustain survival of a premature newborn in an incubator has encouraged the false idea that nature could be removed from the process. Medicine continues to promote reductionism, trying to isolate one cause connected to one treatment. Patients who are not totally mesmerized by this technology are yearning for a more holistic, wellness - promoting medicine, and they are driving the changes in that direction by consumer activism. The transformation is not led primarily by the medical profession, which mostly resists this change. It has just begun to think in terms of whole systems, the complex, dynamic web-like functions of the human body as part of nature.

In contrast, agriculture has been doing this for decades. Farmers have had to be innovative and resourceful, grappling with the complexity of nature. They work mostly outdoors, where there is always the possibility of drought, thunderstorms, infestations, etc.

The author demonstrates six areas of relevant integration of farming and health care in 6 chapters, visiting 6 farms and presenting the healthful changes in 6 patients, each related to a set of methods used on that particular farm. These are 1. Renewing the soil and the renewing of our bodies. 2. Healthful child rearing by learning from animals' mothering. 3. Stress management in animals similar to that in humans. 4. Integrated pest management and healthy human immune systems. 5. Urban gardens promoting better diets and healing the community. 6. Microorganism diversity in soil and diversity of the micro-biome of the human skin and digestive system.

Visiting Jubilee biodynamic farm, the author observed that the animals eat a diversity of plants. They recycle their waste onto the land and thereby nourish the biodiversity of the soil and the complex root system of interconnecting fungi and bacteria, called the "rhizosphere." This system in turn makes available minerals and enzymes in the best usable form for the plants, completing the cycle. The crops are inter-planted and rotated to preserve diversity, not planting one large monoculture of one particular food crop, which is all too common in conventional agriculture.

A study of two villages revealed that the children in an African village where the food is locally produced, harvested, and prepared ate a variety of vegetables, beans, millet, and occasional free-range chicken. Their digestive systems had a much greater diversity of bacteria and of the types that promote health, than the children studied in an Italian village who ate the “junk” food of modern industrialized civilizations. The bacteria in the gut of an Italian child were of the types that promote inflammation, weight gain, diabetes, and cancer, and they were more resistant to antibiotics.

Dr. Miller’s patient, Allie, suffered chronic bloating, allergies, weight gain, fatigue, with tests showing nutrient deficiencies that she corrected with supplements, but she did not feel better. Many foods caused her digestive tract to react with abdominal pain, so her diet was very limited. She had spent many thousands of dollars on medical bills.

Dr. Miller invited Allie to join the farm “eco-cycle:” 1. Get food from farmers’ markets and CSA’s (Community Supported Agriculture in which the consumer pays in advance for a season of produce from one local farm). 2. Eat for diversity. She ate onions, leeks, garlic, basil, parsley, thyme, Jerusalem artichokes, honey, goat milk, kale, dandelions, spinach, broccoli, Brussels sprouts, squash, asparagus, carrots, tomatoes, blueberries, kiwis, cantaloupe, cherries, plums, apricots, apples, and oranges. 3. Eat dirt and bugs. Eat fermented foods, eat the outer peels of vegetables, and don’t scrub them too cleanly (assuming no pesticides or herbicides were used). 4. Don’t take medications that kill the good bacteria in your body – antibiotics, steroids, etc. 5. Volunteer at a local community garden and a school garden, for exercise, wholesome social connections, sunlight, and a purpose to serve others.

A few weeks later Allie stopped almost all of her prescription drugs, she was feeling better than she had in years, and all of her lab tests returned to normal.

Time spent at Rockin’ H. Ranch by the author and her daughter demonstrated the benefits of cattle grazing in a manner resembling the style of wild bison. The rancher had much healthier cattle and soil and made more money than previously when he had fed them grain. The calves, staying with their mothers longer instead of early weaning, learned from their mothers how to pick the best plants from a very diverse salad of pasture. Dr. Miller points out correlate research, which shows that human babies develop a taste and desire for vegetables if their mothers ate the vegetables during pregnancy, and other babies did not if their mothers ate very few vegetables. The same held true if mothers ate vegetables during nursing. Other research shows that the longer they breast feed, the healthier the children become.

Life on that ranch provided many opportunities for contact with a variety of soil bacteria. Dr. Miller visited physician, professor, and researcher Erika Von Mutius in Munich. Her work showed that children who lived on farms where they were exposed to mud, dirt, dust, and animal manure had much less asthma, allergies, and infections than their “clean” urban counterparts.

Dr. Miller's visit to 2 separate "organic" egg producers showed stark differences. On one farm, the chickens were "free-range" inside a barn, under chronic stress of crowding, with little opportunity for play. They had to have their beaks clipped to keep them from pecking each other. They were fed a lot of grain, and they produced many large eggs that sometimes tore open their bottoms, and they had a shortened productive life span.

On the other farm, the chickens spent most of their time outside, had room to play and "gossip" with each other, and had a diverse diet of plants, bugs, and worms. They experienced stress also, but it was infrequent acute stress like a thunderstorm, a bobcat or a hawk, but most of their lives were low stress. They had longer productive lives and did not have to be de-beaked. Their eggs had sturdier shells, and they hardly need any testing to prove the superior nutritional quality of their eggs.

As a parallel study of stress, Dr. Miller describes the lives of two men with similar occupations requiring much travel, public speaking, deadlines, etc. Mike experienced constant chronic stress with his work and was sick much of the time. Carl experienced infrequent high stress events with each travel or speaking engagement, but most of his time was low in stress because he planned ahead, organized his time so he could get exercise, recreation, and sleep, and he experienced good health.

The author points out that not all "organic" foods are equally nutritious, as with the egg farms example. Certified organic means: no synthetic fertilizers, no pesticides or herbicides, no municipal sewage sludge, no genetic modification (GMO's), no irradiation, and no antibiotics or hormones. It does not guarantee:

Food freshly picked from a local farm

No natural pesticides

Recycled waste and water

Animals raised outdoors in pasture

Fair labor practices and protection of safety of workers

Inter-planting and crop rotation in contrast to large monocultures

That processed organic food is more nutritious than conventional foods

Dr. Miller visited an urban community garden in New York City. People turned an abandoned vacant lot into a garden. As a result they created a whole community organization that did not exist before. The drug users and dealers who previously plagued the lot moved out of the area when the gardeners took over. The people including the children enlarged their total intake and variety of vegetables. The area began to resemble a park with parties and recreational activities. The garden actually brought new health and vitality to the community as a whole as well as to each participant.

The chapter on skin health demonstrates the parallel between the soil and the skin. Each has 3 layers, the surface layer containing a rich diversity of dead cells, bacteria, and

fungi. The deeper layers exchange gases, minerals, and nutrients. They both constantly produce new structures such as hair, sebum, and blades of grass.

The author had a skin problem resulting from the application of a lightening cream that had steroids and artificial chemicals. The skin developed an inflammation caused by the disruption of the biodiversity of the organisms in the skin. This unsightly rash on her face continued to be a frustration after many unsuccessful medical treatments by dermatologists. It did resolve to normal skin fairly quickly with the application of an herbal hydrosol (made from distilling the plant to produce both oils and aqueous liquids) from rose geranium (*argonium graveolens*) from a farm she visited that grows herbs and prepares hydrosols.

The only disagreement I would have with Dr. Miller is her contention that food supplements are generally not necessary if good food is eaten. I have discussed this issue more extensively in my previous book report on Food Rules. Supplements are not a substitute for healthful eating, but they can be beneficial in various conditions for remedial work to restore health and to recover from chronic disease. This does not necessarily mean testing for each nutrient and supplying those particular nutrients and expecting that to solve the problem. The farmer at Jubilee Farm also found that simply replacing missing minerals did not make healthy soil. Supplements, especially plant medicines, have a pleotropic (multifaceted), complex action, and they assist the body to restore harmony and balance, often in ways for which we do not have a technical explanation.

Dr. Miller concludes with a summary of the trilogy of “vital signs” important for a healthy farm and for human health. 1. Diversity 2. Synergy – many things acting together in such a way that the total effect is greater than the sum of each of the separate actions. 3. Redundancy – many back-up systems to take over when others fail.

I would add that gardening and farming not only promotes physical activity but also contact with the natural environment in a way that is healing in many ways for emotional and spiritual health. It promotes direct contact of the physical body with the soil. The earth has an abundant supply of electrons, which help to neutralize free radicals. Modern life inside buildings, walking with rubber and plastic soles on wood and asphalt, insulates us from the electrical grounding with the earth. The result of this can be felt in the static electricity that builds up and causes sparks and shocks when we make contact with a grounding object. Cardiologist Dr. Stephen T. Sinatra and cable TV expert Clinton Ober describe the importance of grounding the electricity of our bodies to the earth and its documented health benefits in their book, Earthing.

From my perspective, to achieve better integration of health care with agriculture, the alarming rate of rural to urban migration globally needs to be moderated or reversed. Small farmers lost their land because of unfair trading practices or outright confiscation by global corporations, leaving them to move to cities to look for work. Subsidies to large agribusiness need to be cut, and land reform needs to return land to small growers, with incentives to develop sustainable, marketable farming and gardening. Water rights

of small farms and communities need to be protected. Family planning needs to be made available to all who want it. Increased population puts more strain on available land and water. The ability to feed oneself needs to be recognized as a basic human right.

This book is an innovative synopsis of the importance of our personal connection with the sources of our food and the environment in which it grows. Our health depends on high quality food that comes from a harmonious, diverse, web-like, synergistic environment linked with the wildness of nature.

Dr. Alan Gaby, M.D., a foremost nutritional medicine physician wrote the 1358 page textbook, Nutritional Medicine. In his lectures he recalls frequently that his uncle would quip, “Health comes from the farm, not the pharmacy.”