

Part II – Review and More Excerpts from Secrets of the Soil

Sonic Bloom (Chapter XI, pp. 127-145) is about improved harvests and seeds from those harvested fruits inheriting superior qualities because of certain environmental conditions during growth of the parent plants. Refer to Dorothy Retallack's The Sound of Music and Plants.

Seeds of Survival (Chapter XII, pp. 146-160) talks about the conscientious efforts of Kent Whealy, Director of *Seed Saver Exchange*, and others to find, classify, preserve and reproduce plants from seeds of vanishing species. Some of these heirloom seeds may hold valuable reserves of important genes lost to genetic engineering.

Weeds: Guardians of the Soil (Chapter XIII, pp. 161-172) provocatively makes a case for certain unwanted plants we term “weeds” providing a useful function. Apparently, certain “...weeds, with deep-diving roots, bring to the surface elements beyond the reach of most cultivated crops. They also pump up moisture, raising it by capillary action along the miles-long surface of their root systems, breaking up hardpan in mistreated soil that can range from an inch or two to several feet deep between the surface of the ground and its lower strata...most domesticated crops, pampered by man, have lost the ability to probe deep into the earth possessed by their wilder ancestor. But, once room has been made in the root tunnels of the weeds, cultivated crops can follow search of sustenance; many normally shallow-feeding crops will forage deep into soil if conditions are made right for them...one of nature's valuable laws is that unrelated root systems do better when growing together than when that of a single plant is grown alone.”

(pp. 168-169) “Organic farmers point out the danger of soil saturation with soluble chemicals such as NPK, because the plant, obliged to suck up water to transpire, and normally selective in what it wishes to chelate and absorb, cannot screen out the excess ionized chemicals and thus becomes engorged with an imbalance, which, though it may cause the plant to grow fast and flush, fails to give it and those who eat it, the *balanced nutrients* they need.”

Icicles in the Greenhouse (Chapter XIV, pp. 173-186) makes a strong case for remineralization. In view of the impending global warming and imminent threat of a reciprocal, premature new ice age following this actual, geologically brief episode of warming, particularly around the equator, as a response to it, Dr. Viktor Kovda, wrote (pp. 182-183), “I am certain truly modern scientifically-based agriculture *must* be only ecological-biological-organic, with regular application of manure composts, correct plant rotation (including legume grasses), and, depending on crops, remineralization.” Dr. Kovda during the 1990s was head of the U.S.S.R. Academy of Sciences Scientific Council of Problems of Soil Science and Reclamation of Soils. While in Moscow he is quoted as stating, “As a soil scientist I am much involved in both ecological problems and problems concerning current climatic trends. I am fully informed concerning the existing prognosis of global warming influences by a growing CO₂ concentration in the atmosphere. However, observations by many Soviet scientists in the USSR have

compelled me to believe that on the contrary, it is definitely a cooling trend which is taking place over the recent 15-20 years.”

Whether the current global warming trend is merely a temporary trend and precursor to an impending renewed ice age, or of longer, semi-permanent derivation with severe consequences of its own for several decades to come, is a cause for grave concern relative to the unbridled emission of carbon dioxide.

Dust for life (Chapter XV, pp. 187-198) contains some convincing, yet to some, seemingly controversial statements.

(p. 194) “The ag colleges,” says John D. Hamaker, “funded by the chemical companies, have all along insisted that roots cannot absorb anything larger than an ion solution, meaning their NPK, ruling out the ingestion of whole molecules of humus, and therefore any advantage to placing organic additives in the soil.”...”The chemical food faddists’ concept that minerals are taken in by the roots only in the form of ions, and in some unproven way are built into proteins by photosynthesis, is false. The protoplasm of the organisms is simply transferred from the microorganism into the plant cell to perform the function required by its nucleic acids. Each higher form of life uses the protoplasm transmitted up the ladder of life to make compounds specific to its needs. Protoplasm in water is slightly milky and slightly yellow. Both effects are probably from lipids (fats) to the touch. “Put into the ground, it’s ready to go!...The finer it sit he bigger the area it covers and the more it is available to be chewed up by the microorganisms.”

“They feed on the minerals of all the mixed rock in the top layers of the earth’s crust, plus carbon, water, and the gases and sea salts from the air, all of which they turn to protoplasm. The rootlets find the microorganisms, and the invisible root hairs suck up this protoplasm. But they can only do so with fresh microorganisms, many of which are provided by the casting of earthworms or by other larger organisms, which feed on the dehydrated carcasses of smaller ones”

(p. 195) “Dr. Patricia Jackson, of the USDA in Beltsville, Maryland, maintains that the size of ingestible molecules is limited by the size of the pores of the cell membrane to ten angstroms, an ingestion witnessed in cell cultures in the laboratory, but never in living plants. Yet ever since the 1040s careful researchers have maintained that plant roots can absorb much larger molecules. Recent research shows that, thanks to chelating components in humus, plants can capture and ingest enzymes, hormones, and colloidal particles by means of the gelatinous mucigel which they exude.”

“An explanation of this remarkable process of cell ingestion was provided in the December 1987 issue of *Scientific American* by Mark S. Bretscher. In an article on how animal cells locomote, he describes what is known as the ‘endocytic cycle’, in which a cell’s plasma membrane indents into a pit coated oh the inside with protein. This pit balloons inward, taking with it the material to be ingested, is pinched off to form a vesicle, moves into the cell and, in plants releases its load of nutrients in sizes thousands of times larger than the ions of the NPK solution. Comparatively speaking, the difference is between ingesting a mouse and an elephant.” Sort of reminds one of how an amoeba feeds itself, doesn’t it? (Last comment by reviewer.)

“A typical bacterium is about ten times the size of a colloidal particle; (p. 196) the particle, in turn, may be two or three hundred times as large as a small protein, which, in turn, is made of amino acids whose molecules are larger by far than ions. The scale is not peas to watermelons, but peas to dinosaurs.”

Life and Death in the Forest (Chapter XVI, pp. 199-212) reminds us of the horrific after effects of acid rain on forests downwind from industrial chemical plants. Much of Eastern Europe's once pristine forests are now utter disasters. Ecosystems destroyed, devoid of even songbirds as there is nothing to eat, so they don't even pass through. However, a discovery of the beneficial, corrective effects of trace elements found in a particular deposit the Germans call *Gesteinsmehl*, has, since detection has already saved hundreds of thousands of trees. Tyrolean agronomist-engineer, George Abermann says, (p. 208) “Before I started experimenting with this little tree it had no needles at all. The whole aboveground portion seemed stone dead. Then it was treated with *Gesteinsmehl* and it didn't die. Its needles regrew, very copiously, as you can see!” (refer to photo on corresponding page) “What we've demonstrated on a few trees can easily be repeated on millions of them even hundreds of millions, whereas all the young trees which were planted here in reforestation efforts died before we began our experimentation. You should also know that the pollutants in this area are loaded with copper and cadmium, highly toxic to the soil, and that the trees recovered despite the fact that there was no abatement in the cadmium emission.”

(p. 209) “Asked what the effective difference would be between dust ground from Schindel's paragneiss and the diabase quarried in Kitzbühel, Abermann replied: ‘Not much! If, and when, the idea of using massive amounts of *Gesteinsmehl* is adopted in official circles, it will be of no real importance whether it is ground from paragneiss, diabase, basalt, porphyry, or certain other rocks, because all of them produce dust that works in similar ways.’ (All contain lots of Silicon and at least some trace elements.)

“By the end of 1987, (Rudolf) Schindele had built what he calls the world's largest mill for grinding *Gesteinsmehl*, which he exports all over the world, for treatment of both forest and agricultural land, and for addition to human diets. Pointing to his own darkening hair, Schindele recommended a daily intake of two spoonfuls of finely ground rock dust, explaining that its high content of silica, aluminum, potassium, iron, magnesium and other trace elements are essential to health, that vitamins taken in the form of supplements are without effect unless trace elements are provided with them as co-factors.”

Savory Soil (Chapter XVII, pp. 213-225). This was one of the most interesting chapters to me, personally, for a variety of reasons.

First, it reconfirmed the efficacy of mineral application to tired and sick soils to revive and rejuvenate their potentials.

Second, the chapter provided concrete examples of many plant varieties that showed dramatically improved growth and yield results when chelated trace elements were added to their nutritional regimen. A number of these were supplementary species to other studies I had compiled from elsewhere.

Third, this section also provided further testimonials about the benefits to livestock that regularly ingested modest amounts of *Montmorillonite*.

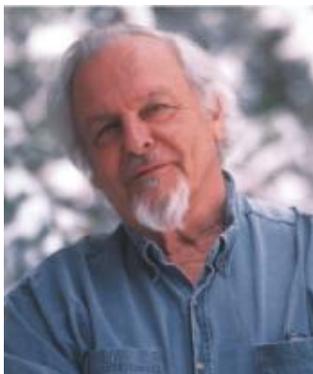
But, perhaps most interestingly, the authors recounted their personal witnessing of a copy of Dr. Melchior T. Dijkers hard-to-find, out-of-print book, The Story of Trace Minerals, often quoted on the INTERNET (p.220).

A few quotes:

Speaking of a particular species of *Montmorillonite*, (p.216) “Now geologists consider it to be an ancient oceanic deposit brought to the surface by volcanic action, a form of heavy sedimentation on the sea floor, a mixture of mineral elements and marine life such as seaweed, shrimp and algae. The clay contains all the essential mineral trace elements in a balanced ratio, as laid down by nature. In this form the minerals are naturally chelated, as in plants and animals, in an organic, easily assimilable form...It helps satisfy the ‘hidden hunger’ in soil caused by mineral depletion or deficiency from continued use over long periods of time. Soil without humus is half alive, and without bacterial action humus is dead. The reason the bacteria in the soil fail to function properly is because of the lack of natural trace element and catalysts.”

Another interesting fact was that little hardened pieces of incompletely ground clay could be fed to chickens as a grinding agent for their gizzards. Hens that have ceased laying, start laying eggs all over again when fed the minerals. Baby chicks will take it too from the very first day, and “it seemed to stimulate their appetites. They developed more evenly, feathered out sooner, and later gave a greater percentage of fertilized eggs. Pullets were laying a week before they were supposed to, and their shells, which had been fragile, were now much harder. Did you know that it costs the US poultry industry \$60 to \$70 million annually for broken eggshells?...With turkeys we had even greater success’.”

Biomass Can Do It (Chapter XVIII, pp. 226-242). This chapter speaks about the billions of tons of garbage, excrement, spoiled crops and other refuse that can be put to good use producing natural compost and energy. According to “James A. Duke, Phi Beta Kappa,



Dr. Duke, author of The Green Pharmacy, Anti-Aging Prescriptions, Herbal Antibiotics, Dr. Duke's Essential Herbs and many more interesting books

PhD in Botany, has been for many years with the USDA at Beltsville, Maryland, and is responsible for over a hundreds scientific publication and several books,...‘With just the acreage that now lies fallow, we could be self-sufficient in energy and not have to burn another pound of fossil fuel’...To make auto fuel from fresh plant tissue is just as easy as making it from the fossilized remains of plants and microorganisms. But plants have an enormous advantage: they are renewable, yearly and indefinitely.” (p.231) Damaged grain could be used for producing industrial alcohol. (p.234) “Opting for a green world instead of a greenhouse, Duke points out that anywhere on the planet we can increase the rate of photosynthesis to sop up CO2 to make simple and complex sugars we can decrease the magnitude of the greenhouse effect, a solution simpler, cheaper, and mor practical than some of the farfetched and expensive suggestions of worried climatologists.”

Purified with Fire (Chapter XIX, pp. 243-254)

To be continued...