

# BOSS ARCHIVES

## SOIL

A famous geologist once wrote: "All soil is rock material on its way to the deep". Current agribusiness, agrichemical, horticultural and other technocratic propeganda would have us believe that soil is nothing more than rock material to provide mineral nutrients and physical support for man's crop systems. All other life forms are treated as foreign invaders and are to be suppressed. These attitudes are at the heart of much of agriculture's contribution to today's environmental crisis.

Soil is actually a fantastically complex living system, which therefore is subject to the ecological imperatives constraining all living systems. The structure of good topsoil consists largely of two substances. The first is parent rock material broken down and moved over the millenia from higher places and deposited in valleys and bottom lands. This material is on its way to the ocean, but it is held in topsoil for a long time by vegetation and the other component called humus. Humus is decomposed plant and animal material, "organic" matter. Humus must either be incorporated into the soil by man, or, in natural systems, it is formed by the continuous life-death cycle of soil organisms. Humus is absolutely essential to the proper regulation of air, water and temperature, critical elements of optimum plant health. Man has yet to demonstrate that his works can function as efficiently in this regard. No matter how elaborate and sophisticated, there isn't a water plan in the world that regulate water as efficiently as a natural forest or prairie watershed. Man's plows do not aerate the soil as efficiently as the millions of earthworms in an acre of rich soil, or as well as a field of deeprooting clover.

Man's smudge pots and heat machines can't compare with the temperature regulation provided by humus and the thick vegetation it draws from and supports. Humus, then, is crucial to the health of all life, because we are all dependent on the soil, space-age tricks notwithstanding. In fact, some very persuasive history has been written showing that humus and the fate of past civilizations are very directly related; certainly this has been true on a local scale.

Mankind, dependent upon agriculture, must manipulate the soil life system in some sense, that much is clear. The question is one of method. A better knowledge of natural systems should determine these methods, and, in fact, man's economic and political systems should be compatible with these ecological realities, not contrary to them, as at present. In addition, from any reasonable moral point of view, man has an obligation of trust to himself, his descendents and other living things, as a matter of survival of all life, to so manage his land that the basic integrity of the life system is preserved.

Although some civilizations and individuals are notable exceptions, the general result of man's historical activities has been a flagrant abuse of this trust, and manipulation of the soil system has usually amounted to violent assault. Until recently, the main problem has been a greatly accelerated erosion of the soils. In the last few decades new problems have arisen, stemming directly



from a rampant technology. Under the assault of heavy machinery, the soil becomes more compact, necessitating ever more and deeper plowing. Single crop systems, clean cultivation and easy availability of synthetic pesticides subject the soil system to a never-ending spiral of pests and poisons. Heavy applications of commercial fertilizers, "agricultural speed," not only give the plant an unnatural growth, but burn out the humus and many life forms, poisoning the groundwater as well. Finally, salt builds up, the result of heavy irrigation and fertilization, and where is it to go? The nature of such a system is similar to living off of one's capital and being a drug addict to boot. As the humus is depleted, the people dependent upon the soil are threatened with the worst kind of poverty. The Central Valley of today is no different from the Great Plains of the past: the details have changed, but the process goes on inexorably under the control of modern technology and growth economics. Inexorably, that is, unless these institutions are fundamentally changed. Strangely, but predictably, we have a garbage crisis in the cities and, we are told by U.C. Davis, an accumulation of "unwanted" manure in the state. Such is the marvel of the last third of the Twentieth Century.

As is true in most other aspects of ecology, what we know about the soil as a living system is far outweighed by what we don't know. To grossly manipulate a life system about which we know little is to invite catastrophe, the dire consequences of which we will all share. What "being of nature" means is to manipulate living systems in harmony with known natural processes. Modern soil conservation techniques are a small but essential step in the right direction. We need to go much further, by using natural pest control techniques, encouraging earthworm populations to share in the cultivation, limiting irrigation and use of agricultural chemicals, practicing multiple cropping and, above all, returning organic wastes to the soil. There are large-scale farms in this state which are run profitably on these principles. The rest of agriculture would do well to follow their lead, instead of following the propaganda of the chemical companies. Unless this is done, our soil will find its way to the deep sooner than we think.

If you feel that you cannot morally support these kinds of atrocious practices here are a few suggestions for constructive alternatives: buy only organically grown foods, join food conspiracies, grow your own food, use biological pest control, compost waste materials, plant green trees, shrubs, flowers, and oppose any new developments in the agrichemical business.

Remember that these practices will change only when you as an individual and we as a collective peoples refuse to lend our support!

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