

TOWARDS A NEW DECADE

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This article is reprinted from *Biodynamics* No. 94 (Spring 1970). Written in contemplation of how the 1970s would, or should, unfold, this essay continues to have great relevance for practitioners of biodynamic farming and gardening. Time has progressed, but the issues raised still persist.

At the turn of a century, or while passing through the middle of a century, one is tempted to survey the years gone by and try to prognosticate what lies ahead. Presumably most people get a chance to experience such a date once during their lifetime, or even twice. In books, articles, and speeches the major achievements, the failure of the past and also the major catastrophic events are recalled by which Nature has reminded man of her powers. It certainly is very constructive if in the flow of time people stop for a moment of contemplation instead of busily hastening on to another impression or activity. A great many articles have appeared recently in magazines and newspapers dealing with the events of the past decade. Their authors wonder what the century may hold in its quiver. It is unlikely that this outflow of comments and contemplations has appeared only because the news media have become busier than ever. During the past ten years decisive changes have actually taken place, established certainties have vanished, and a great mass of unanswered questions have risen before us. It is as though people everywhere are witnessing a time which is crammed with events of short duration, if measured in time, which yet seem long if judged by their psychological burden. This condition creates the hypothesis that in order to cope with urgent questions and achieve a better understanding of what has happened, a completely new reorientation is most urgently needed.

Ecologists and conservationists who work the soil, grow plants and take care of animals know that these general remarks apply to their particular fields of interest. The focal point of the question can perhaps best be expressed by a remark taken from Aleksandr Solzhenitsyn's novel *The Cancer Ward*. An old experienced doctor says about man: "The organism of a sick person does not know that our knowledge splits it into individual parts. In reality it is a whole." The remark is made with reference to the physician's efforts to design an effective therapy. This physician relationship is equal to what we are doing in our use of natural resources. We act as though Nature were a conglomerate of individual parts and not a system of interrelated functions.

In recent years enormous progress has been made in quantitative food production. For years the public has been fed with information which speaks of a food shortage which threatens a growing world population. Finally a few weeks ago, a brief report was published which stated that now the annual increase in food production equals or is slightly higher than the growth rate of the world population. Although such figures offer little comfort to those who are hungry now, this announcement should not pass unnoticed. In the December 1965 issue of *The Farm Journal* two brief reports appeared on the Farmscope page. One states that some top farms in the midwest now average 150 bu. of corn per acre. The other says that a known weed killer

may be banned by January 1, 1970 because rats and mice fed with this chemical had produced offspring with a higher number of deformities than expected. These two reports which could easily be replaced by dozens of similar ones, illustrate our situation.

There has been much progress in farming and gardening. However welcome the real achievements are, they are nevertheless paid for by a number of ill side-effects upon the health of human beings and the quality of man's environment.

By the end of the Sixties both the negative and the positive aspects of these problems had assumed shapes and dimensions which are drastically different from problems ten years ago. The historian Arnold Toynbee, citing the ancient Tigris-Euphrates area as an example, thinks the decisive factor is a failure to handle the environment, causing the decline of ancient cultures. Of course, in saying this one describes an external aspect only

It is man who influences his environment through his way of thinking, his desires, his responsible or irresponsible actions, his poor or advanced knowledge about the forces that maintain life. In 1962 Rachel Carson's *Silent Spring* appeared. Hardly ever has a book on such a subject met with so much response. It came out when the time was right. Yet it is a fact that this book was attacked by the majority of professionals and scientists alike, not to mention the makers of pesticides. Most of these believed it was written by an outsider, who out of idealism or romanticism had spoken out on a subject the significance of which she could not really appraise.

Only seven years later, in 1969, DDT and some other chlorinated hydrocarbons were banned in a number of countries. These very persistent pesticides were produced worldwide to the amount of approximately 4 million tons. According to *Chem. Zentralbl.*, 1968, 38, 3113, the half-life time of such compounds can travel through the atmosphere to places far beyond the treated areas. While the toxicity of the specific chemicals usually is fairly well known, the combined effects of many of them, which are repeatedly applied in fields, gardens, forests, lakes, rivers, etc., are unknown. However, experimental evidence is available which shows that the effects of such combinations may multiply and become more toxic than the sum total of their individual effects. Because these and similar observations are increasing, there is also growing concern about the contamination of our environment. The presence of these poisons in the ecological system may cause or trigger a variety of unwanted effects. These include not only the direct influences which many pesticides have upon the nerve system; rather, long-term effects may harm the offspring, impair fertility or cause malformations. Schupan recently quoted an interesting example of long-term effects. In certain wine growing districts until twenty-seven years ago arsenic had been used widely as a pesticide. Today the organization of winegrowers officially still acknowledges liver cancer to be a vocational disease among growers, caused by this pesticide. This applies to only this one pesticide. Since those days the situation has become much more difficult to survey. The pesticide situation as it has now developed during the past ten years has definitely taught us that the ecological system forms an interrelated whole and human beings are included because they are also biological beings.



INTRODUCING THE TERM "BIOSPHERE"

Correct terms help to evaluate a problem. When we speak about "environment" we mean not only the conditions of matter and energy but also [the] relation of these to the life of an organism that is exposed to a particular environment. We also use the term "ecological system." This term emphasizes the interrelatedness of the members which form this system. However, one does not get very far toward a real understanding of the system if one relates to it only in physical and chemical categories. The word "system" might suggest such interpretation. In reality this system is an *organism*, with intricate mutual relationships among the individual parts. We might also add that it has a very intricate feedback system. It may therefore be advisable to use a term which points to the *life* in this ecological system. The word "biosphere" presents itself, although this has a meaning quite different from the meanings of "environment" and "ecological system." These two words apply in case of a local relationship. For example, each individual plant has a specific environment. Sunshine and moonlight also influence the life of the plant, but our first reaction is to think of the soil, the conditions of moisture and temperature and other surrounding plants which compete for space, water, sunshine and nutrients.

A few acres of forestland form an ecological system. The forest grows in a certain environment. Within this area grow a community of weeds, grasses, rodents, insects, birds, and so on, forming a system. The word "biosphere" draws our attention to the fact that this extends over the whole world. This point of view has recently gained in significance. We speak of the atmosphere meaning the whole gaseous mantle of the earth. The word hydrosphere points to the water filling the oceans and also includes the cycle of water which moves through the atmosphere, plants, soils and rocks, and eventually flows back to the oceans in rivers and streams. The lithosphere, consisting of

igneous and sedimentary rocks, forms the solid ground on which we walk.

Wherever these three spheres are in closest contact and penetrate each other, there is the space in which we find a dense population of plants and animals. A thin soil covering varying in depth from a fraction of an inch to a few feet sustains the green mantle that covers the solid earth. Birds and insects live relatively close to the surface, while monsters inhabit the deep sea. But the primary production of living substance, which sustains all the life in the ocean, occurs close to the surface, where, under the influence of the sunlight and the atmosphere, plankton and seaweeds grow. The vertical extension of this layer in which the conditions for biological life are just right, is very small compared with its horizontal extension. Yet within this biosphere myriads of species and individual organisms form a community which in the course of evolution has arrived at a certain balanced proportion. Man belongs to this biosphere insofar as he is a biological being. In his own interest he wants this biosphere to function properly. Ever since he has built human cultures, he has influenced the life of the biosphere. Recently his influence threatens this life more than ever before.

This fact calls for a reorientation in our thinking and in our will. Much research has been done to study the realms of living Nature. Great men have devoted all their strength, knowledge and enthusiasm to preserve and to use wisely our natural resources. They have persuaded others to do the same. Yet in spite of the efforts that have been made, our knowledge about the life conditions of this biosphere is still scant. The trend of modern scientific thinking has always gone in another direction. We study the parts composing an individual plant or animal, its organs, its cells, the cell content. Among these components we study the nucleus which contains chromosomes. These carry the genes, which consist of complicated molecules, nucleic acids, etc. This knowledge is not merely theoretical. Its practical appli-

cation has given tremendous power to man to alter decisively the life processes of plants and animals. Plant breeding, a number of agricultural chemicals, and many drugs are based on such knowledge. New varieties of high yielding plants are available. Agricultural chemicals and drugs usually work successfully with respect to the primary purpose for which they are applied. But all too frequently ill side-effects show up which may outweigh the benefit that one was aiming for. This is why so many innovations hailed a short time ago phase out again more or less silently. While it is often difficult to assess the side effects of a certain chemical in an individual organism, it is still more difficult to foresee the long-term changes which it causes in the biosphere. During the past few decades man has added tremendously to his power to alter Nature. It is not the individual alone of whom we speak, but of groups and even nations who use this power at will. Furthermore, many changes seem to be irreversible.

Future historians may point to the Sixties of this century and say this was the time when it became evident (and when awareness was growing) how much man is and will be able to change the life of the biosphere. The awareness is growing. Action is taken in many respects by individuals and governments. But this must not obscure the fact that the trend prevails toward a worsening situation. Technological developments, economic and social pressures and other factors are still stronger than action taken here and there. There is still a long way to go if man is to preserve his natural resources and use them for lasting productivity. If many work hard and enthusiastically, always based on sound knowledge, it may be expected that some steps will be made to improve the situation during the Seventies.

... This is not the place to repeat many of the details of how man has already despoiled the quality of the biosphere and continues to do so. Factual information about this is presented to the public in newspapers and magazines. One should welcome such information because it helps to keep alive the awareness of the situation in which we are. In this context we would rather like to discuss another problem.

Everybody will agree that much has to be done to change man's current trend of constantly destroying more and more of our natural environment. But the route which we shall travel forms a gable. And the difference between the two roads which proceed from there will become ever more evident.

One direction can be described in the following way. Based on the theoretical approach to an understanding of Nature, which has brought us to the point where we now stand, one could continue with just the same concepts as one did before. One measures the capacity of soils, water and of the plant world to [withstand] the impact of modern technology. One avoids ill side effects as much as possible or one develops ways to remedy them. Whatever is done in this respect will no doubt be valuable. The question remains however whether this approach will suffice. It is an easy one, because theoretical concepts mean nothing to one. It also requires only gradual reconsideration of our attitude toward Nature—not a basic change.

This attitude is based predominantly on the belief that we can deliberately do whatever serves our selfish desires. We only have to be a little cautious to avoid the system breaking or fighting back. One cannot ignore the fact that this is a shaky position

which provides no real answers when somebody asks: Why should this generation take so much trouble to preserve this Nature? Why not use it at minimum expenditure and leave it to future generations to find the answers when they need them?

One can think of another way. It is one that emerges from more respect for and responsibility towards man and Nature. In the beginning of this discussion we mentioned a word by Solzhenitsyn. This word is spoken out of the experience of a man who worked as a physician, as a healer, all his life. He knows that to heal the human organism requires more than merely to repair a subsystem of it. An organism is more than just a functioning system of organs.

This thought can be applied to man as a biological and a spiritual being. In the very core of our thinking, feeling and intentions we do not want to function as though we were a conglomerate of independent subsystems. We want to live as a consistent being that chooses to hold what it does in accordance with what it feels. Merely to exploit Nature in order to meet the material requirements of our physical existence is not enough. It is a kind of self-deception if one believes that it is enough. Usually when we find this attitude, we will notice in most cases that the person in question just has never thought very much about his or her motivations. The creative forces in our being want to build, to fashion. This holds true in both our personal life and our professional life. Real satisfaction can be acquired by a positive attitude that fosters the welfare of man and of the realms of Nature as well.

Such an attitude may also open new possibilities for our cognition of Nature. Whoever tries to disclose some of Nature's secrets—be it as a gardener who likes his flowers and shrubs, as a naturalist who studies her at places far away from our busy towns, or be it as a scientist who devises experiments—realizes that whatever he finds out is fragmentary. And so too are the theoretical concepts which he has. It would be sheer superstitiousness to believe that we have already learned all the basic concepts from which to approach the realms of Nature—even though the natural sciences are now developed to a level never reached before. There has been much discussion of what makes an organism function as a whole entity. All we know for sure is that much talking about wholeness that took place in the past did [not] take us very far. But there must be a way to understand more about the very nature of organisms rationally.

The Goethean approach, to develop adequate thoughts about the *type*, or *typical plant*, which has more or less come true in the individual plant, gives a clue towards this understanding. The *type* can be described in categories that are essentially different from those used in physics and chemistry. What Goethe has designed, and what was taken up by Rudolf Steiner, is a method. Some results, now part of plant morphology, are there, but most of the work still has to be done. There is no doubt that the positive attitude of one who wants to build, who wants to foster the natural beings, will help him to understand the nature of the organisms with which he is dealing. This attitude grows out of respect for the object and an unselfish study of it. This unselfish attitude and respect is necessary if the more hidden sides of a thing are to be found. There exists a mutual relation between our doing and our cognition. It is not true that we only

apply practically what science has found out. What we do and our attitude towards it also directs our research towards a certain path.

From the very beginning of the Bio-Dynamic Movement it has been the goal of bio-dynamic farmers and gardeners to implement this attitude in their work. That is why this method has never been merely a number of measures that can or cannot be used. There has always been a concept behind the individual measures. Those who practice this method want to apply their cognition about the realms of Nature, to fashion farms and gardens into functioning or “balanced” organisms.

This balanced farm or garden is organized to the extent economically feasible, in accordance with the natural conditions of the particular site. It fits the purpose of man because it is organized by him. But he employs the processes of life adequately; he works with them not against them. What we hint at here is an ideal.

Neither do we have all the knowledge we ought to have, nor does the economic situation in all cases permit us to act in the way we would like to. But there is no doubt that faithfully working towards this goal yields satisfaction to whoever does so. And it is also true that many abuses which now result in unwanted side effects at the farm and in the biosphere as a whole can be avoided by such a positive attitude. The Bio-Dynamic Movement, however small it may be, makes a contribution. This cannot be expressed in terms of acres worked according to this method. It could easily be demonstrated that much of the concepts, many individual measures have also proved helpful in general farming and gardening. We are sure, that during the decade to come, the movement will make more valuable contribution to the welfare of man and of the biosphere which sustains his life.

It was an incisive, though sad, event for the Bio-Dynamic Movement in America and abroad when at the beginning of the

Sixties on November 30th 1961, Dr. Ehrenfried Pfeiffer passed away. For more than twenty years he had worked in the United States and in other countries of the Western hemisphere. But his advice and practical help were asked for on the other side of the Atlantic and Pacific Oceans as well. The results of his research were also known and recognized in many countries. During [the] twenty years before he came to the States he had been one of the leaders of the Bio-Dynamic Movement in Europe.

His research and teaching covered a broader field than agriculture. It extended into medical, nutritional and ecological fields. The Bio-Dynamic Movement in America has been fashioned by him. The organization which he has designed still functions pretty much as it did while he was alive.

But more important than this organization is the fact that he was able to gather a group of devoted and enthusiastic people [from] all over the country. They are faithful workers towards the goals of the Bio-Dynamic Movement. Many of the burning problems which we face now were taken up by him years ago. The technical answers designed in the past will change and in many respects have already changed. Not so the ultimate goals of creating a healthy environment, promoting the production of quality foodstuffs, [and] teaching people to use them in a way that benefits their physical health and spiritual aims. In a movement such as the Bio-Dynamic there can be no stagnation. Those who are at work now must be joined during the years to come by others, especially younger ones. They will fashion this movement according to their intentions. But since the idea for which this movement stands is sound, moreover is called for by the obvious needs in our time, it surely will kindle in the minds and hearts of many the courage and the dedication that is required . . .

