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INTRODUCTION

A simple definition of ecology, which I have used before, "... is the relationship of man, beast, fish, fowl, vegetation and all other forms of life to each other, to the living soil, and to the total environment."¹ It is logical to assume that any any factors which interfere with or disrupt this relationship at any stage, or stages, will produce pathological changes in the higher forms of life. Adequate nutrition is, of course, essential for all forms of life and Mother Nature has immutable laws which must be followed if life on this Earth is to continue. The rise and fall of civilizations is closely related to the way mankind has handled the thin green carpet of living soil upon which his very existence depends. History suggests that a decline in soil fertility is always accompanied by a corresponding decline in the vigor of the people who dwell upon it.

There is no question but what important changes in the quality of our food have followed the advance of civilization. These have been most Since marked with the advent of the industrial revolution. The extent of these changes must be recognized and dealt with if our civilization is to survive.

Space permits only a brief and fleeting survey of a most important and fascinating subject. Hopefully, the reader will take time to delve into the references attached, some of which may not be specifically referred to in the text.

PRIMITIVE MAN AND HIS CULTURE

Primitive man - no matter where located - was primarily dependent upon foods in his vicinity. This was the time of the cave man and other small isolated groups before the development of real tribal life. It also applied to larger groups such as the Peruvian Indians who lived along the coast and primitives in other coastal areas who depended principally upon fresh fish, fruits and a few vegetables. The Masai Tribe in Africa - tall warriors, averaging over six-feet - used raw milk and the blood from their cows as dietary staples, plus a few vegetables, fruits, and other items which were available at certain times of the year. (Nevertheless, they have always had a very low cholesterol and an extremely low incidence of heart disease.)¹

In contrast, the primitive Eskimos subsisted on raw liver, blubber, seal meat and fish plus a few berries and greens that were available during $\delta r because ef$ the summer. In spite of this, they had perfect teeth and good health. Nor were they obese.

Up until twenty years ago, many primitive tribes were available for study as documented in Dr. Price's classic and profusely illustrated book NUTRITION AND PHYSICAL DEGENERATION.¹ More will be said about this later on.

As noted above, the cave man became a herdsman. At this time, he

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had developed the ability to domesticate wild cows and horses so that they would serve his purposes. In this respect, he learned to collect sheep, goats, _______ cows and horses in herds. Some of these were used for transportation, but the great majority of them were primarily valuable as a source of food. At about this time, he also learned to cultivate various vegetables and tubers which would supply him with food that he could not otherwise acquire. During this period, three of the most important methods of preserving food - to be eaten out of season - were drying, smoking and freezing. Of course, the latter could only be practiced in the Arctic or the Anarctic. Preservation in brine solution was also known and used.

In the early days of this country, farmers, after clearing timber, would plant corn and other crops and when the land was no longer productive, many would move on towards the west. Those who remained, conserved the fertility of their soil by using the time-honored methods of allowing the land to lie fallow, plowing-under green crops, using animal manure on the land by sheet composting and rotating crops. They preserved the hedge rows which formed a refuge for birds that in turn helped to keep insect pests under control. These methods kept the land productive and were satisfactory from all aspects until the advent of artificial, synthetic fertilizers which permitted the development of mechanized farming.² (The influence of Liebig⁸) who believed that every-Could Athing required by a plant can be found in the mineral ash of that plant was $\sqrt{27} m_{\rm ex} u^{D}_{\rm ex} A$

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fertilizers on the basis of their NKP content.

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The most important effect was the gradual elimination of the small farmer and the consolidation of land into large conglomerates as the result of mechanical cultivation and seeding. The development of synthetic fertilizers containing NKP, which could be broadcast by machinery revolutionized American farming practices. The tractor, seed-spreader and harvester, together with other machinery and the development of a great multitude of chemical pesticides, which were used to control weeds and in an attempt to reduce the destruction of crops by insects and other pests revolutionized the practice of agriculture. The small farmer was gradually driven out of business and moved to the city. The large farmer became more and more dependent upon mass production and the use of chemical agri-business to produce larger crops to be sold at higher prices to meet his higher costs. Thus a vicious cycle was set up. To stay in business, the farmer must produce bigger and bigger crops, aim-Such an approach ing at quantity rather than quality. With few exceptions, this has been K This, understandable since, fortunately, our the goal for many years. country is still based on the profit motive and the free enterprise system. However, something must change if our civilization is to survive. As Dr. Albrecht has stressed for many years, we must produce food for "quality rather than for quantity".³

My interest in nutrition first developed when I was in medical school and I could not find a common denominator for the multitude of syndromes which I encountered in my training and for which no logical explanation or

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treatment was available.

After a great deal of thought, I believed the answer must lie in nutrition.⁴ My experience through the years had reinforced the belief that this is a correct assumption and that poor nutrition may be considered as the primary cause of disease.¹ In other words, the soil is more important than the seed - although both have great influence.

INDUSTRIAL REVOLUTION

It is common knowledge that a basic change in medical thinking takes $from_{kn}$ $f_{OFT_{4}}$ twenty to thirty years for acceptance unless the subject is one which can be demonstrated dramatically in the laboratory and then in the clinical Therefore, in the radical changes which were taking place in our area. civilization, including mass migration to the cities and abandonment of the small, individual farms, more time had to elapse before the implications of this movement were obvious. With the advent of the motorcar and the gradual shedding of the "old shibboleths" of religion and belief in eternal truths, including the Ten Commandments, a new generation was The eventual results of this abandonment of fundamental subverted. beliefs and the flight from the country to the city are becoming obvious but not yet fully realized. Among other things, the move from the country to the city has affected a tremendous number of individuals who are now in a new environment and who are dependent upon different types of food than they were used to on the farm. In addition, they are affected by many other influences which may not be in their best interest. This

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includes a radical change in the quality of teaching which is frequently of a hedonistic character.

Naturally, when populations move to the cities, they must depend upon food supplies transported from the farm, which are stable enough to survive such transportation and to have a long life on the shelf or in the deep freeze. In addition to the older methods of preservation, which included drying, freezing and smoking, we now have canning, the deep freeze and other methods which often include the addition of chemicals to inhibit bacterial growth.

About seventy percent of our food is now processed and, therefore, may be treated in various ways by the addition of chemicals which are designed to reduce spoilage or to improve the physical appearance of the food.⁵ Moreover processing includes the addition of synthetic colors as well as anti-caking agents, anti-oxidants, synthetic odors and flavors, and many other additives which are supposed to make foods more attractive to the consumer. In addition to these, there is a host of additives which are unplanned and which include pesticides residues of various sorts resulting from those used on our crops or in our food which in turn Chemical additives are fed to our animals. The total number of pesticides, in some food hugdreses items may be numbered in the dozens. 6, 7, 9 Not the least of these is the group of herbicides, including the pre- and post-emergent types which make it unnecessary for any farmer to employ help to hoe the weeds between the rows. Anyone who has traveled the roads of California through any area used to produce food crops has seen the fantastic appearance

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of row upon row of vegetables with no weeds whatsoever between the crops. This is fine for the farmer but the question is how much harm $\underbrace{\mathcal{S}}_{\mathcal{S}}_{\mathcal{S}}_{\mathcal{S}}_{\mathcal{S}}_{\mathcal{S}}_{\mathcal{S}}_{\mathcal{S}}_{\mathcal{S}}$ does it do to the consumer?

Interestingly enough, "Agent Orange" - composed of equal amounts of 2, 4-D and 2, 4, 5-T - was used as a defoliant in Vietnam for a number of years. It was finally determined that this combination was not only lethal to many crops and to brush and trees, but was completely destroying the ecology of the coastal areas and the river estuaries in Vietnam. Therefore, in 1971 the use of this combination was banned. Most people are unaware that "Agent Orange" has been used in the national forests up and down the coast of California, Oregon and Washington for the past 20 years. (It has also been used in our national forests in other states.) Moreover, it is scheduled for use again this year in May or June. This in spite of protests by those who suspect that the use of these herbicides is dangerous. More will be said about this later on. *It*

Obviously there is increasing pollution from motorcar exhausts, from the emissions of factories, steel and cracking plants, as well as cement and power plants. These discharges are contaminating our air, water and food and yet the public health service is attempting to force the addition of fluorides to all community water supplies throughout the world. This may be due in part to the fact that fluorides are such a widespread contaminant that many industries have extreme difficulty in getting rid of them. If they can be monitored into and through our stomachs at one part per million, this makes them respectable, and

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therefor their disposal that much easier. The drive for fluoridation is probably the result of a misinterpretation of statistics back in 1950.¹² It takes no cognizance of the fact that the concentration of fluorides in air. water and food is on the increase, creating an unrecognized hazard to all living things. For example, it was recently discovered that the Fontana Steel Plant in the Los Angeles area was producing one tone of gaseous fluorides per day, or 365 tons per year. Engineers had previously estimated that no fluorides would be emitted by this plant. ¹³ Obviously. for many years, our Los Angeles County air has been polluted by up to one ton of fluorides per day from this source. No wonder our Ponderosa pines at Lake Arrowhead are dying! Gladys Caldwell analyzed the needles for fluorides and found them to contain 79 parts per million of fluorides, whereas 60 parts per million is enough to cause death of these trees. ¹⁴ Ponderosas and others containing smaller amounts of fluorides (and other chemicals?) are intes? beetles more susceptible to attack by bettles-and fungi which primarily attack and destroy trees weakened by disease.

As a result of the industrial revolution, we are suffering from increasing pollution from other sources such as motorcars, factories, etc., and many chemicals are in our air, water and food which were never there before. It is common knowledge that perhaps forty or fifty percent of our water supply contains nitrites or nitrates resulting from the run-off of fertilizers applied to agricultural areas. Large amounts have been found in wells in agricultural areas — enough to cause illness in young children.

Synthetic fertilizers have caused an increasing problem because

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they supply a shot in the arm to plants growing in soil to which these have been added. The use of synthetic fertilizers has permitted the production of monorculture. This consists of the production of one crop, which after harvest is followed by another of the same crop, after fertilizer has been drilled into the soil. The end result is partial sterilization of the soil via the destruction of soil bacteria and microbes which, under normal circumstances, are vital for the production of good sound crops. The addition of these synthetic fertilizers without replacing organic material and trace elements, plus the application of toxic pesticides, including $+ \int_{1}^{1} \int_$

Most crops are dependent for a considerable part of their nutrition on the interaction between mycohrrizae and the small rootlets of plants. Such interreaction in which the mycohrrizae enter the roots of the plants and are then consumed as a source of nitrogen and minerals and enzymes, 17,17-A,18 cannot take place if the soil is sterile and is lacking in organic material. Our present method of agriculture favors destruction of microbial life in 19,17-77the soil and is rapidly inducing decreased fertility.

The synthetic fertilizers usually lack trace elements and do not return any organic material to the soil. As noted above, organic compounds are essential for the production of natural antibiotics. Without them, we can only expect a continued degeneration of our topsoil and contamination of our lakes, rivers and wells by nitrates and other components of synthetic fertilizers which accompany runoff into these waters.

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In addition to toxic insecticides, other chemicals — which include the pre- and post-emergent herbicides — cause further damage to the soil and even to the plants which they are supposed to protect. There is also increasing evidence of toxicity to human beings and animals, as a result of the use of various types of herbides, particularly phenoxy herbicides (2, 4-D, 2, 4, 5-T and Silvex).

It is common knowledge that DDT and the polychlorinated biphenyls have now permeated our eco-system so that they are present in animal and fish life in the Arctic regions. This, of course, means that they are being spread through the air as a result of spraying and of pick-up by winds which carry them tremendous distances so that ho part of our globe is free from contamination. Recent evidence suggests that even DDT in the air, when exposed to sunshine, may be changed to polychlorinated biphenyls. The latter are plastic substances whose use is being vehemently discouraged because of their indestructibility. The same is true for 3, 4, 🕏, 8 tetrachlorodibenzo-p-dioxin, one of the most toxic substances of the chlorinated hydrocarbon group known so far to man. This is an obligate contaminant of 2, 4, 5-T and Silvex. Other dioxins are present in 2, 4-D. To think that our Government would approve the use of Agent Orange in our national forests, not only along the Pacific coast, but in other areas such as grazing land throughout the country for the control Individuals of brush, is almost incredible. Those in Globe, Arizona, and in New Mexico who were subjected to direct spraying by U.S. Dept. of Agriculture helicopters suffered severe illness. Neverthless our Federal government

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5, 10, 11, 20, 21, 22, 23, 24

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acts as though nothing had happened.

Processing of our food, either by freezing, canning, drying, pickling, or other methods of preservation, brings about a loss of nutrients which varies with the type of processing, the length of shelf-life and the condition of the product when it was processed. There is a loss of vitamins, minerals and trace elements, as well as damage to the protein and perhaps the colloidal state of the minerals which has not been realized before as lowering resistance to disease. This is well illustrated by the timely studies of Schroeder, which have pinpointed the unusually large losses which occur in canned and frozen foods, particularly in reference to the B-Complex vitamins. As much as eighty percent of Vitamin B_{4} may be lost in canning and substantial quantities even in freezing. Large amounts of other vitamins are also destroyed. This is much more than we had previously thought to occur in canned or frozen foods. Unfortunately Dr. Schroeder is unaware of the rapidly increasing contamination of our be aware of environment by fluorides. Nor does he seem to know the clinical toxicity 4,2,3,4,9,12 which has been reported. Therefore, his remarks regarding optimum fluoride intake are seriously open to question.

It has long been known that milling white flour from whole grain resulted in a loss of practically all the vitamin E, much of the magnesium $\beta_{VITAMINC}$, and calcium, as well as large amounts of trace elements and much of the protein. The remainder of the wheat berry consists mainly of starch. This is what our people are being fed in the form of white bread, believing it to be highly nutritious. The addition of iron and one or two members of the B-Complex cannot possibly replace the nutritional value of the original wheat berry when baked into bread a few hours after being stoneground into flour. Bread is no longer the staff of life and our people 20, 24, 26, 27, 29 should know this fact.

It is obvious that the loss of nutritional factors inherent in food processing must bring about biochemical imbalances, insufficiencies and changes which may be expected to result in lowered resistance to infection. This has been shown to be true in animal experiments, illustrated by the observations of McCarrison, Price, Albrecht and others whose findings will be referred to at a later time? 25, 26, 29, 30

It bears repetition that in addition to canning, drying, freezing, smoking, past/frization and other methods of preservation, our foods are Λ contaminated by a remarkably large number of pesticides, as well as antifungal drugs, anti-oxidants, anti-caking and foaming agents, extenders, blenders, bleaches, anti-bacterial agents, and others which are used to preserve many of our present day foods. The long-term effect of contact with these chemicals, plus those which are added inadvertently, such as pesticides, fungicides and herbicides, remains to M or chemicals be seen. I suspect that a summation effect occurs and that we may look forward to much illness in our population as a result of this multiplicity of chemicals, together with a decreasing protein and mineral content of our foods.

Many pioneers have felt this way and I shall briefly describe some of their beliefs and findings.

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VITALITY STEMS FROM THE SOIL

The end result of flouting nature's law is degeneration. Lady Balfour in her most interesting book, "The Living Soil", ⁸ brings together and synthesizes the observations of a number of individuals. Her theme is that health depends upon utilization of food grown in good soil.

Her statement that crop predators such as eel worms are markedly reduced by the use of compost is of extreme importance. The findings of various scientists — summarized by her — all support the idea that soil vitality is essential to health, not only of plants but of animals and human beings. 27

Sir Robert McCarrison²⁵ in 1921 described the necessity of accessory food factors to which Casimir Funk a year later gave the name vitamines, later changed to vitamins. McCarrison's studies definitely revealed the fact that healthy birds on adequate diets were resistant to infections of all types. He reproduced most of the diseases afflicting present-day mankind by feeding rats on the diets which were used by Englishmen and Indians of the low country. When rats were given the food which was typical of the Hunza's in the High Himalayas, who often reached $\frac{40}{10}$ the age of 100 and more — the rats had no disease whatsoever and simply died of old age. Strangely enough, very little attention has been paid to these findings. One of McCarrison's observations in the realm of pathology included the fact that pigeons and other creatures on markedly deficient diets showed similar changes. These consisted of atrophy of the thyroid, pituitary, lymph glands and Peyer's patches in the intestine,

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the nerve plexuses in the intestine, and the thymus and lymph glands. Intestinal walls were thinned and the bowels elongated. In contrast, there was marked hypertrophy of the adrenal cortex. However this gland showed loss of secretory cells, indicating compensatory hypertrophy without evidence of an increased secretion of the adrenal cortical hormones. This is the typical picture which was painted more recently by Hans Selye. ¹⁰ Unfortunately, McCarrison's observations have been neglected for many, many years.

W. A. Albrecht, Ph. D.,³ Chairman of the Department of Soils, University of Missouri, has written hundreds of papers describing the relationship between the fertility of the soil and the health of beast and man. Many of his studies indicate that the midwest - where buffalo originally roamed in uncounted numbers - was fertile because of a moderate amount of rain, substantial amounts of organic material in the soil and large calcium deposits beneath the topsoil. Wheat and other cereals grown in this area were originally very high in protein, but have gradually lost this vital substance until now they contain scarcely half of the content of one hundred years ago. The use of synthetic NKP fertilizers has not maintained the fertility of the soil, since such fertility is basically dependent upon the return or build up of organic materials, trace elements and other minerals. In fact, synthetics destroy microbal life and thereby hasten soil degeneration.

It is extremely unfortunate that millions of tons of top soil are being dumped into the ocean each year as a result of continued erosion via our

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rivers and streams. This, of course, is primarily the result of the destruction of our forests and the rape of our land in a continued plan to active agen 72. increase our food supply by monoculture. Wind and drought are also active.

The late F. M. Pottenger, Jr., M.D.,²⁹ was conscious of the nutritional balance between soil and man and based his therapies upon this knowledge. He was concerned with the relationship between the adrenal cortex and health. He was one of the first to develop a natural adrenal cortical extract and to attempt to standardize it by the use of adrenalectomized cats. His studies with cats and rats convinced him that these animals must ingest at least two-thirds raw food in order to survive and to reproduce in homogeneity. They also proved beyond any doubt that cats raised on one-third raw food and two-thirds cooked food could not survive for long and, in fact, died before the fourth month of the third generation on such food. Within six months these poor animals became ill and below par. The incidence of allergy increased from about five percent to more than ininety-five percent in the third generation, and all animals, in the second generation, suffered from the chronic diseases and the acute infections which afflict our race. These included arthritis, dermatitis of various types, allergies, pyorrhea, pneumonia, nephritis, etc. Vermin abounded and intestinal parasites were commonplace. Viciousness and homosexual tendencies markedly increased.

Animals raised on two-thirds raw food and one-third cooked food reproduced in homogeneity and were happy and healthy to the end of their lives.

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It was quite interesting to note that after the experiments were concluded and weeds were allowed to grow in the various pens, that The soil of which Contained The refute of those pens containing animals raised on raw milk or raw meat supported vigorous growth of weeds in contrast to almost no growth in the pens of those raised on heated milk. In other words, the excreta of cats raised on raw foods possessed a far better fertilizing potential than the others.

When degenerating cats were shifted to raw foods, it took three or four generations before some of them began to approach normal cat physiology and anatomy. This is thought-provoking.

The studies of Weston A. Price, D. D. S., who traveled the world several times studying the health and food habits of fourteen primitive tribes before and after they had contacted our civilization, are of extreme importance. His work can never be repeated since practically all tribes are now degenerating rapidly along with us. His profusely illustrated book¹ shows that on their own tribal diets, even though all of them were different, each tribe had perfect dental arches and practically no tooth decay. Once they started eating the foods of civilization, which included canned foods, sugar, white flour, polished rice and refined vegetable oils, their health degenerated rapidly. In addition to marked dental caries, they began to suffer from other diseases of civilization and showed rapid evidence of degeneration. Children born of parents who had adopted the foods of commerce had narrowed facial bones and dental arches, which resulted in crowded teeth as well as tooth decay and other degenerative

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phenomena such as club-foot and cleft-palate.

It is of extreme interest that if natives who had conceived a child after they had been eating the foods of civilization, then returned to their tribal diets and conceived another child - the latter would again have wide dental arches, wide cheek bones, and no decay. In other words this was a degenerative picture which was caused solely by nutritional deficiency and which was not gene mediated - at least in the first generation.

The work of Dr. Roger Williams³⁰ of the University of Texas deserves great credit. Dr. Williams was the discoverer of pantothenic acid and folic acid and also the progenitor of a theory which seems absolutely logical. This theory suggests that many of us - in fact probably most of us - are becoming nutritional cripples because our ancestors ate poor food over several generations. Therefore, we have inerited deficient enzyme systems which may require large amounts of certain vitamins and/or minerals in order to be normally activated. His experiments and theories are being supported by the observations of numerous clinicians who are using mega-vitamin therapy and rehabilitating many classes of previously hopeless patients. These include schizophrenics, manic depressives, and hyperkinetic or apparently retarded children. It must be noted that many of the people falling into this classification are also allergic to chemicals and foods and that megavitamin therapy alone is Combined not enough. However, this combination approach is now rescuing perhaps hinery 90 percent of schizophrenics from the never-never land of incurable mental illness and permanent incarcertaion in mental hospitals. Credit

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is due to many investigators, including Randolph, ²¹ Philpott, ³¹ Mandell, ²³ von Hilsheimer, ³² Lockey³³ and others.

For those who are aware of nutritional and other advances in this area, the practice of medicine has become exciting.

Realization of the fact that over half of the calories consumed by people in the United States, Great Britain, and other civilized nations include large amounts of "empty calories" in the form of sugar and white flour, helps to explain the increasing prevalence of degenerative diseases, particularly in the United States and Great Britain. It should be obvious to any impartial thinker that the tremendous loss of vitamins, trace ele- $Ih d \left\{ u d \ln \frac{1}{2} \right\}$ ments, and calcium and phosphorus and other minerals, including magnesium, must result eventually in degenerative diseases. How can it be otherwise? This new knowledge of nutrition and ecology and of food technology provides a solid foundation for a newer type of medicine based on nutrition and biochemistry. 2^{6} , 27, 32, 34, 42 John Yudkin 35 of England is the most recent writer to document the harmful effects of refined carbohydrates.

Cheraskin and co-workers have written important books on this 37 subject.

POSITIVE STEPS WHICH MAY BE TAKEN TOWARDS HEALTH AND PREVENTION OF DISEASE

It is obvious that solid nutritional education is needed, beginning in the early grades and continuing throughout college and medical school. Until recently no one has known very much about practical nutrition and physicians have received no real education in this subject while in college

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or medical school. Dietitions have unfortunately been taught that enriched white bread is as good as freshly ground whole wheat. This, of course, is a fallacy which can be easily demonstrated by comparing the health of white mice fed white bread as the primary source of protein, Tha T of with mice raised on bread baked from freshly-ground whole wheat. The contrast is striking. Other fallacies are equally as bad, including the teaching that regardless of the soil, the plant grows at all, its content of nutrients will be as good as any other. Re-education is essential in other areas at well.

Nature demands that what is taken out of the soil must be returned to it. This includes organic material most of all. For many years now we have been disobeying nature's laws by growing crops in monoculture, one after the other, and not replacing the organic material and trace elements which have been taken out. Instead, we have been using synthetic fertilizers — which, together with our herbicides and pesticdes — are destroying the billions of microscopic organisms and also the earth worms which constitute a living soil. If we are to survive, we must rebuild the soil by returning to it all organic material and trace elements which have been removed.

Farm practices must be revolutionized by stressing the ecological approach. This is not only most satisfactory from the farmer's standpoint (including income), but produces the best type of food and preserves the soil. Everyone with any interest in this area should be familiar with a new publication³⁶ which describes how to farm in the ecological or organic manner.

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Because of the increasing amount of highly processed, or even lightly processed, foods which $\frac{1}{24}$ being used by our populace, and which has now reached about seventy percent of our food supply, very few individuals are consuming an adequate diet. In other words, in spite of plenty of calories, their cells are starving for good nutrients. It is vital that we increase the supply and availability of raw and lightly processed foods. ^{1, 29, 37, 40, 42} In view of the decreasing food supply and the rapidly increasing world population, it is essential that every individual, including apartment dwellers, begin to raise at least a few vegetables in home gardens in or outdoors. The amount of vegetables thus grown should be rapidly increased to a feasible maximum. (Sprouted alfalfa and other seeds provide a source of valuable uncontaminated food.)

Sound, practical nutrition — as has been mentioned before — should be taught from the first grade onward. Children should be shown how and raise to the first Toxic chemicide to plant vegetables and should watch these from the planting of the seed until maturity. They should be taught the difference between vegetables raised in composted soil and those from commercial markets. There is a real difference in flavor. They should also be taught how to read labels and to avoid foods containing chemical additives.

Food selection must be taught as well as methods of storage, preparation, cooking and serving. Everyone should realize that throwing away the water in which vegetables are cooked (if they are not steamed as they should be) is like brewing coffee, throwing away the water and eating the grounds. Vital minerals are lost in the cooking water. Steaming is the

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ideal method of cooking vegetables. Raw vegetables — as tolerated — are of great value.

Teachers should stress the vital importance of using increased amounts of raw and unprocessed foods. Since cats undergo rapid degeneration over three generations and only reproduce normally on twothirds raw food, it is probable that we should eat at least fifty percent of our food raw. More might be better for us.

CONCLUSIONS

It is logical to assume that a healthy body supplied with foods containing the necessary nutrients and low in chemical contaminates should remain healthy and reproduce in homogeneity. Such was found to be true in all the fourteen tribes studied by Dr. Weston Price, ¹ as long as they followed their primitive diets. Even though these tribal diets differed markedly, they had one thing in common: the amount of vitamins in these foods was about four times that recommended by our National Research Council. All these primitive diets provided a large increase in water soluble factors over those in modern diets. The fat soluble vitamins exceeded those of modern diets by a factor of ten at least. Since these foods were unrefined they also supplied from two to eight times the M. D. R. of calcium and phosphorus as well as up to 28 times the intake of magnesium recommended by the National Research Council. Naturally trace elements must have been adequate.

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In the words of Dr. Price, "Almost all primitive diets studied contained at least four times the minimum requirements whereas the displacing nutrition of commerce, consisting largely of white flour products, sugar, polished rice, jams, canned goods and vegetable fats, have invariably failed to produce the minimum requirements." Obviously, a healthy body will be more resistant to toxins and infections.

Health stems from the soil, which must be adequate in minerals, micro-life, organic matter, earth worms, etc., in order to provide healthy plants. Obviously, toxic sprays and herbicides, as well as large doses of inorganic nitrates, potassium and phosphates will have a toxic effect on good soil.

Inorganic poisons such as fluoride, nitrites, nitrates, and pesticides in our air and water can do nothing but harm.

A toxic environment and poor food breed a degenerating and sickly people, who have lowered resistance to disease as well as increased susceptibility to chemicals and allergens of various types. Race degeneration and results in constantly increasing numbers of abnormal births, degenerative diseases (arthritis, allergies, atherosclerosis, hypertension, coronary occlusion and cancer).

The laws of nature are immutable. They include checks and balances which keep the numbers of all creatures within reasonable limits. Under ordinary circumstances, healthy, well nourished plants, crustacea, arthropods, fish, animals and man live out their normal life spans unless taken by accident or predators. The weak and sickly are destroyed by predators of various types, including disease microbes.

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Bacteria and fungi are the ultimate foes of man and play an important part in most of his diseases. Life is a continuous tug-of-war between microbes and immunological defenses. This applies as well to all living things.

This concept is presented in an amusing manner by Hegner³⁸ who states in the preface to his delightful book on parasites: "Big fleas have little fleas upon their backs to bite 'em, and little fleas have lesser fleas, and so, ad infinitum."

Virginia Livingston³⁹ has dramatized the findings of herself and her associates indicating that a pleomorphic organism, which she designates as Progenitor Cryptocides, is a cause of cancer, tuberculosis, scleroderma and other conditions. It changes from a virus, through a coccus, to an acid-fast bacillus and grows in culture as an Actinomyces. Her findings indicate that we all carry it, but it occurs in large numbers in the peripheral blood of the seriously ill, including those with cancer where its manifold forms are easily visualized by dark field microscopy. Her approach to treatment is immunological and nutritional. It makes sense.

I think of this Cryptocides as the "universal scavenger" which eliminates unhealthy, deficient individuals. The destruction of weak crops by insects may be another method of natural selection, since healthy plants in composted soil suffer very little from insect attack.

The only logical answer to rapidly increasing costs for hospitals, medical care and nursing homes for the care of more and more invalids and nutritional casualties is preventive medicine based on adequate

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nutrition and better health habits. Socialized medicine could only compound the problems.

Meanwhile, food and chemical allergies, together with the need for megavitamins and minerals, must be recognized and used by those who have knowledge in this area. The results obtained will gradually spread to other members of the healing professions who are naturally loathe to accept radical changes in the concepts which they have been taught in school.

The widespread application of good nutritional knowledge can greatly improve the health of present and future generations. This must include the goal of food grown for quality rather than quantity and recognition of the fact that foods vary widely in nutrient content, depending upon soil fertility, mineral balance, processing, preparation, cooking and other factors. With improved nutrition, there should be a marked reduction in the number of human beings born with or developing degenerative diseases.

Aside from the fact that the nutritional approach offers great satisfaction to both patient and physician, this approach is essential to the survival of our civilization.

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