Rape of the Soil

More Food, Less Nutrition

All earthly life depends ultimately on plants — for plants are the only living organisms able to create life from inorganic matter. This is accomplished through the fascinating process of photosynthesis, by which plants utilize the sun's power in order to convert water, minerals from the earth, and carbon dioxide from the air into carbohydrates, proteins, and oils — the basic sources of energy of all living things. Science has not been able to reproduce this deceptively simple chemical conversion in the laboratory. It has only gone so far as to develop various means of providing the plants with nourishment, so that they may draw an even greater supply of food from the soil.

Soil is where nutrition begins. Soil contains the raw materials that yield shimmering fields of wheat, firm, golden stalks of corn, and juicy, plump strawberries. Decaying rock particles and rock dust form the bulk of topsoil, the surface strata that is the growing medium of most food plants. The remainder of soil is mostly a mixture of decaying vegetable and animal wastes known as humus.

Inside this rich topsoil is a complicated balance of living organisms that help the plant assimilate minerals and chemical compounds from rock particles. Funguses, bacteria, earthworms, and insects are among the many forms of life that feed on humus. These minute animals slowly decompose plants left from the previous growing season, as well as animal carcasses and manure; they also serve to aerate the soil so that gases can be exchanged and water absorbed. As a result, sulfuric and carbonic acid are generated, which furthers the decay of rocks and releases their mineral contents, thus enriching the soil.[1]

In the wild, nature maintains a constant ecological balance. Plants that have created life from the soil return to it in death, as do animals that feed on plants. Absorbed and processed by the soil, the dead are recycled into the living. In nature there is no waste, no pollution.

Unfortunately, this perfect state no longer exists in the human food chain. For most of the 12,000 years since plants were first domesticated, farmers simply supplemented nature with organic fertilizers, and rotated crops or let fields lie fallow so that the soil's nutrients would not be depleted. The earth was not made to produce more than it was constitutionally able to bear.

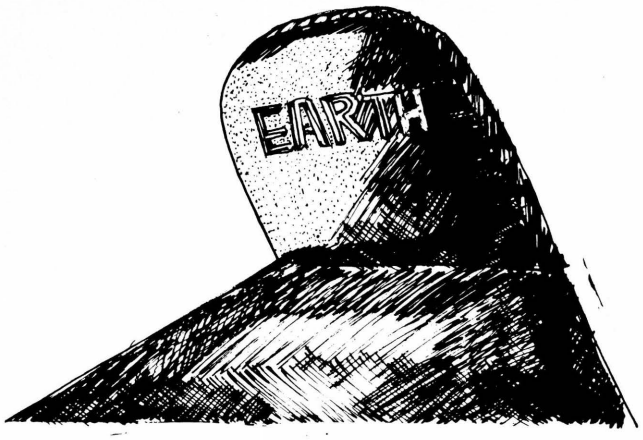
Then, early in the nineteenth century, a renowned German chemist named Justus von Liebig discovered that plants could be artificially fertilized with chemicals. To determine the chemical elements needed by vegetation, von Liebig conducted a series of brilliant experiments through which he discovered the chemical substances used by plants. He burned numerous species of plants, analyzed the substances found in the ashes, and determined that soil was merely a mixture of these substances. If humans were to provide these chemical substances, he believed, plants would obtain all the nutrients they needed. As scientifically sound as this conclusion may appear, it failed to take into account that soil is more than its mineral content.

Von Liebig all but ignored the organic, living components of soil that are contained in humus. Being a laboratory chemist, he failed to understand that the myriad network of underground life — from moles, mice, and shrews to earthworms and microorganisms — is an indispensable, life-generating part of soil. To von Liebig's way of thinking, all that were needed were artificially produced nitrogen, phosphorus, and potash, three basic requirements of plants in natural form.

Death of the Living Soil

By the time von Liebig's artificial fertilizers became generally available, farmers in the United States had already robbed the land of one-fourth of its topsoil as a result of poor soil management.[2] The seriousness of this loss becomes readily apparent when we consider that it takes nature 500 to 1,000 years to replace a single inch of topsoil. Most of the early settlers and pioneers did not know how to conserve soil, and they did not bother to learn. After all, the land was free or very cheap, and there seemed to be a never-ending abundance of it. "Get what crops you can out of the land, and when it's burned out and can produce no more, move on," was their credo.

The wages of this random rape of the land were paid with a vengeance during the mid-nineteen thirties. Great dust storms boiled up over much of America's farmlands, blowing away clouds of black topsoil from recently plowed fields. The prairies had been overgrazed, trees which had once broken fierce winds and held moisture in the land had been cut down years before, and the earth was dried out from overcultivation. Thousands of "Okies" — impoverished farmers — were forced to leave their wasted farms and migrate to the still fertile earth of California and the Pacific Northwest.



Today, most farmers, aware of the damage done by their ancestors, successfully combat destruction of the soil by wind and water erosion. At the same time, they have found a new way to destroy the land — by forcing it to produce more than it should with chemical fertilizers. Huge industrial farms, aptly dubbed "agribusinesses," have largely taken over the land of the small, conventional farmer who lived close to nature and consumed the crops produced. Today, the quantity of production is more important than quality, and most of America's farmlands have been polluted with artificial chemicals for the sake of profits.

Ecological balance no longer exists on most farms. Today's farmer tends to overplant a few limited crops, thereby depleting the soil of certain essential trace elements. In the past, a farm was a self-contained environment. Today, the produce farmer buys meat from the butcher shop and milk from a store or dairy farm, instead of keeping cattle, chickens, and pigs. Because agriculture has become so compartmentalized, the farmer has sacrificed a readily available source of natural fertilizer — animal wastes. This is an unfortunate loss, for soil dressed with manure produces crops that are more nourishing and tastier than those grown in chemically fertilized soil.

Chemical manufacturers insist on perpetuating the myth that there is not enough organic fertilizer to go around. The facts do not bear this out. In fact, animal waste in the United States amounts to 2 billion tons annually, which is equivalent to the waste produced by half the world's population.[3] In other countries, manure is distributed to farms, an all-but-impossible task in the United States. Cows and pigs are concentrated in single feedlots that contain from 10,000 to 50,000 animals, and up to 250,000 chickens, and therein lies the problem. It would be prohibitively expensive to collect and transport all this natural fertilizer to fields where it is needed, thousands of miles away.

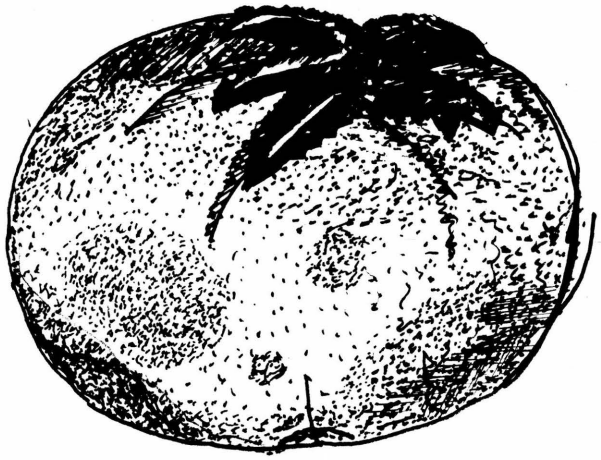
Bags of chemicals, therefore, become cheaper, cleaner and easier to transport. So, instead of contributing to the food chain by a natural recycling process, animal waste is disposed of as sewage to pollute the nation's water systems. In less than a century, humans have upset the balance of nature by robbing the soil of nutrients that are never returned to it. Even our waste is wasted.

The widespread application of artificial nitrogen, phosphorus, and potash (known to farmers as NPK) brings about changes in the composition of soil which destroy or seriously disturb organisms that benefit it. The presence of these organisms serves as a barometer of soil fertility. If they cannot survive, it is a sign that the soil will not bear crops worth eating. The work of earthworms and microorganisms is essential, but these animals are destroyed by these chemicals. Super-phosphate fertilizers tend to create acid conditions in which they cannot survive. In Australia, nine-foot-long earthworms originally present in vast numbers were completely exterminated by this type of fertilizer.

The destruction of living things in soil occurs because the ingredients in artificial fertilizers are so readily water-soluble. In nature, easily soluble fertilizing elements rarely occur. For example, humus harbors plant nutrients that dissolve in water very slowly, feeding plants at a rate that precludes the possibility of poisoning them and their living benefactors in the soil.

Proper fertilization also involves more than the application of three concentrated chemicals to the roots of plants. More than a dozen minerals and trace elements are needed as well. Although these account for only one percent of a plant's needs, minerals and trace elements are extremely important nutritional factors. Many human diseases result from diets deficient in these factors, which are often not obtained from foods grown in chemically treated ground.

Chemical fertilizer manufacturers were quick to jump on the bandwagon when it was discovered that these elements were lacking in synthetic plant foods. They quickly mixed in a few, calling them such things as "power boosters". All of these concoctions were totally imbalanced, for they did not stimulate a balance in the proportions that exist in nature. Consequently, the cabohydrate-protein ratio of many crops began to change for the worse, and vitamin content declined.



The Rotten Red Tomato

The sad state of the American tomato is a case in point. Once fragrant, flame-red orbs bursting with juice, tomatoes in recent years have become woolly, tasteless globules that can practically be bounced off the wall without being bruised. Fertilizers and hybrid strains combine to produce tomatoes that have superior handling and keeping qualities. But what about the loss of vitamin C and flavor?

No longer thinking in terms of patches and pounds, farmers were faced with new problems when production covered acres and amounted to tons. Harvesting machines would damage normal, tasty tomatoes, so a pulpy, thick-skinned hybrid that could withstand rough handling was created. Since agribusinesses have created a demand for fresh tomatoes the year around, the growing season has been unnaturally extended. Grown during the winter in southern and western states, tomatoes can no longer be left to ripen on the vine if they are to survive being shipped thousands of miles to the north. As soon as NPK forces them into existence, tomatoes are picked green and ripened artificially. During the long voyage in refrigerated trucks and trains, tomatoes are kept in temperature and humidity-controlled environments that effectively stop their growth. Just before they are sent to your local market, tomatoes are sprayed with ethylene gas, which turns them red. The consumer is forced to purchase a nutritionally worthless, unripe, cosmetically treated product — or to do without tomatoes.

Excessive use of artificial fertilizers lessens the keeping qualities of many other food plants, making it necessary to pick them before they have absorbed whatever nutrients are left in the soil, thus allowing them to ripen naturally. Industrial farmers fondly point to the beautiful, uniform appearance of their produce as proof of the benefits of NPK. But consumers are forced to eat celery that is as pithy as it is pretty, melon-sized and mealy cucumbers, and strawberries big as apples but with less flavor than the cardboard containers which contain them.

The health of a plant is a complex matter that is not always reflected in the plant's appearance. Crops regularly doped with chemicals never attain the optimum food value of their organic counterparts. The trace minerals mentioned earlier cannot be effectively absorbed, even when present in the soil. In artificially fertilized plants, the beneficial effects of humus are thwarted, if not destroyed. It is the finely dissolved particles of humus that transfer most of the minerals from the soil to root hairs. Being negatively charged, humus particles attract positively charged minerals, such as potassium, sodium, calcium, manganese, magnesium, boron, aluminum, iron, copper, and other metals. When nitrogen is poured into the soil year after year, both humus and root hairs become coated with it, and the transfer of minerals can no longer take place.[4]

Too much potash decreases synthesis of ascorbic acid (vitamin C), carotene (vitamin A), chlorophyll, and amino acids. Too much phosphorus produces a zinc deficiency. Livestock and poultry are fattened on chemically produced grain and pass these deficiencies on to us when we eat their meat. Humans, the last link in the food chain, inevitably suffer the consequences of this tampering with nature. Many medical researchers believe that the comparatively recent upsurge in degenerative diseases is directly related to the inferior quality foods produced by modern farming methods.

The Green Revolution

In the 1940's, the widespread use of chemical fertilizers and pesticides prompted the agricultural establishment to herald the arrival of a "green revolution." Super-hardy crops impervious to insect pests could now be grown in unending abundance, it was said, and the world's food shortages would soon be met. In the 27 years between 1946 and 1973, the use of nitrogen alone increased by over 550 percent. The total American use of NPK was nearly 45 million tons by 1973[5]

Meanwhile, the protein content of farm crops began a steady downward slide that continues to this day. The promise of abundance was fulfilled, it is true, but at a heavy cost. In Kansas, for example, wheat yields per acre shot up dramatically when artificial fertilizers were introduced, but the protein yield declined in an equally dramatic curve. In 1940, Kansas wheat contained as much as 17 percent protein. In 1951, only eleven years later the amount fell to 14 percent, the average yield being about 12 percent.[6] Starchy, cheap carbohydrates took the place of this life-giving foodstuff.

At a time when the world's hunger problems are particularly pressing, the "green revolution" has tried to meet the challenge with quantity, not quality. Chemical fertilizers weaken the proteins that remain by upsetting the delicate balance of amino acids within protein molecules. Their body-building, tissue-renewing qualities are seriously jeopardized. When a single amino acid is missing, as is often the case, the other nine refuse to do their job. If non-essential amino acids are not present, even though the others are, the essential ones may do only half their work. The body tries to compensate for these faulty foods by craving and eating more of them in order to meet its physical requirements. The eating of greater and greater quantities of protein foods which can be only partially utilized at best serves only to waste protein, which is not only in short supply in terms of the world's needs, but is the most costly item in the diet, as well.

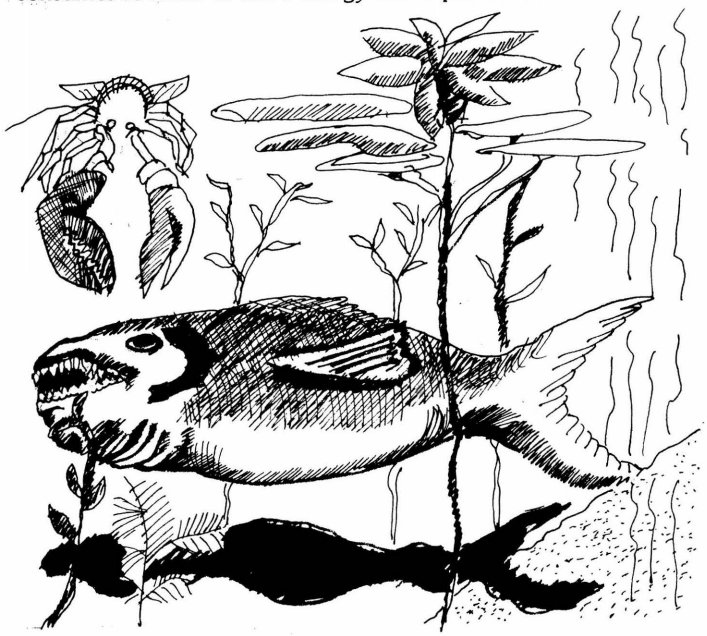
Dr. William Albrecht, an internationally renowned agronomist, effectively sums up what is wrong with American agriculture when he states: "Man has become aware of increased need for health preservation, interpreted as a technical need for more hospitals, drugs, and doctors, when it may simply be a matter of failing to recognize the basic truth in the old adage which reminded us that to be well fed is to be healthy. Unfortunately, we have not seen the changes man has wrought in his soil community in terms of food quality for health, as economics and technologies have emphasized its quantity. Man is exploiting the earth that feeds him much as a parasite multiplies until it kills its host. Slowly the reserves of the soil are being exhausted."[7]

Deaf to such warnings, the chemical industry continues to reiterate its blind faith in the ability of human technology to fabricate the solutions to our needs. It points to the fact that nylon and other synthetic fibers have largely replaced cotton and wool, that cars roll better on imitation rubber, that detergents wash better than soap, and that plastic dishes don't break the way china and earthenware do. One gets the impression that natural products will soon go the way of the horse and buggy.

What is seldom considered is the real cost of the manufacture of chemical substitutes for what the earth can produce more efficiently. For instance, both cotton and nylon consist of long chains of small units of molecules linked together (monomers). The cotton plant takes the energy it needs to produce fiber from the sun and draws raw material from the soil. It costs nothing and creates no pollution. Nylon, on the other hand, is made from petroleum — a fossil fuel that is stored plant energy of a millenia ago. To bind the molecules into the required monomers, petroleum or coal must be burned to supply energy to operate factory machinery. Thus, great amounts of non-renewable energy sources are lost forever. The factory produces air pollution as a byproduct of manufacture, and nylon and plastic gadgets, utensils, plates, and cups litter the landscape forever. They are new to the life cycle and no microorganisms exist that can degrade and recycle them back to the soil.

Mention should be made here of the recent appearance of biodegradable products on the supermarket shelves - most notably, various laundry and cleaning products. Such products are able to be broken down into substances that can be recycled by the soil. This is one of the few ways in which today's consumer is at least given a choice between helping to preserve or destroy the earth's ecology.

Although the raw materials of chemical fertilizers are as abundant as the world's stones and mountains, the manufacturing process consumes an immense amount of fossil fuel energy. Add to that the cost of transportation to farms and mechanical dispersal, and you have a truer picture of the tremendous waste that results from substituting the artificial for the real. In other words, the so-called "green revolution" consumes as much or more energy than it produces.



Streams of Disaster

Instead of returning our waste products to the land, where nature uses them as food, we simply get rid of it all as garbage. Untreated sewage eventually finds its way into American streams, rivers and lakes, along with disastrous amounts of NPK leached from the earth by irrigation and rain. Both provide nourishment for water plants and cause them to grow in abnormal numbers and sizes. This uses up the oxygen dissolved in the water, which in turn does two harmful things: it kills fish and other water animals that depend upon oxygen for life, and it takes away the selfpurifying ability of the water. Dissolved oxygen acts on small amounts of pollutants such as sewage and changes them to pure, harmless substances. Even industrial wastes

can be rendered harmless in small amounts by oxygen dissolved in ecologically balanced waterways. But massive doses of fertilizers have overwhelmed nature's defenses, and many bodies of water have suffered the fate of Lake Erie, which was, until recently, foul and practically lifeless.

According to the august Institute of Ecology, "It is a gigantic one-way flow of elements from the earth and the air into the sea. The scale of the operation is far greater than anything previously known on the face of the earth. And this human phenomenon is in stark contrast with the natural communities of plants and animals which have been living in balance with their surroundings for thousands of years."[8]

This one-way flow of essential elements from the earth to city to water can be stopped if a concentrated effort is made. Strong measures will have to be taken if we are to feed back the nutrients we now rob from nature. Organic fertilizers will have to be substituted for artificial ones; waste products will have to be processed and recycled if the closed system we live in is to survive.

The city of Chicago is a pioneer in reclamation of land and water — hopefully a harbinger of future progress in the United States. Working with the U.S. Army Corps of Engineers, Chicago's town planners recently set in operation a massive plan to clean up the badly polluted lower end of Lake Michigan. Tons of sludge obtained from sewage effluent and processed industrial wastes have already been spread over land ruined by strip mining and, within a few years, the land has nearly restored itself. By means of an innovative technique humans were able to speed up nature's slow process of regeneration.

So far the major portion of the plan remains to be implemented. Estimated at a cost in excess of $7 billion, the plan requires the building of huge rural lagoons into which sewage and waste would be pumped. Aerated, the lagoons would contain bacteria that break down wastes into organic fertilizer. Several times a year the fertilizer would be collected from the bottom of the lagoons (where it settles) and sold to farmers at a low price. The fresh, cleaned water would be pumped to farms for irrigation, where it would be cleaned again by the living soil before flowing back into waterways. Organic nutrients would remain in the earth, and no pollution would result. If numerous communities were willing to adopt such a plan it could be an important first step in restoring the earth's ecological cycle. Perhaps our produce, fish, and water could one day again be safe to eat and drink.

A great deal of controversy surrounds the plan, however, and it may be years before it is put into effect. People don't want lagoons to be built in their vicinity, for they falsely equate lagoons with swamps. Through lack of knowledge, they think of such unpleasant things as mosquitoes, malaria, and snakes. Some farmers mistakenly believe that their crops would be fertilized and watered with "Chicago's filth." If an intelligent explanation of the causes of environmental and body pollution were to be promoted and advertised as widely as the products of industrial manufacturers, such misunderstanding would not exist. But there are no dollar profits to be gained from informing the public. Obviously, health and the elimination of the root causes of many diseases are not even minor considerations.

Bringing Down Baby

The subtle and gradual poisoning of the land has been completely overlooked by most farmers in their rapid and unquestioning acceptance of chemical farming. It took a few years before the detrimental effects became evident and by that time the fertilizer industry had become so large there was no stopping its crushing wheel of "progress."

The prime component of chemical fertilizers is nitrogen (nitrates) produced in the laboratory. Runoff water containing nitrates often seeps into farm ponds and wells, rendering them unfit for human and animal use. Cattle drinking nitrate-contaminated water lose weight; they are no longer able to completely utilize their feed. Cows show the symptoms of nitrate poisoning by giving less milk, and what they do produce is of inferior quality. If not treated at once, animals and humans soon die.

Nitrogenous fertilizers have their most immediate and drastic effect

on babies. The source can be either polluted water, or vegetables that have absorbed too much of the fertilizer. Public health officials are alarmed at the increasing occurrence of a disease, methemoglobinemia, the cause of which is directly linked to nitrates. In 1945, it was discovered that certain bacteria in the stomach are able to convert nitrogen compounds into poisonous nitrites, similar but deadly. When nitrites enter the bloodstream, they react with hemoglobin (the red pigment in the blood) to form methemoglobin. Since hemoglobin carries oxygen to tissues via the blood and methemoglobin does not, the victim may turn blue and, in some cases, suffocate and die. Infants are particularly susceptible to this form of poisoning, for although their stomachs contain less acid than do those of adults, their intestinal flora contain certain types of bacteria that facilitate the transformation of nitrate to nitrite.

In 1945, only two cases of methemoglobinemia were reported in the United States. In 1950, several years after the introduction of chemical fertilization, 139 cases had been identified in Minnesota alone; 14 of these cases were fatal.[9] In 1962, the Public Health Service recommended that when the amount of nitrates in drinking water reaches 45 parts per million, public warnings should be issued and parents urged to give their children bottled spring water instead of tap water — an expensive and inconvenient solution for most people. Unfortunately, there is no simple test an individual can use to determine whether this danger level has been reached.

Further scientific studies continue to show that food as well as water can be dangerously contaminated by nitrates. In fact, many baby foods contain lethal amounts of these chemicals. A 1971 study at the Missouri Agricultural Experiment Station came up with the evidence that several brands of canned baby food contained as much as 40 milligrams per two-ounce jar. This amount is well in excess of the 12 milligrams of nitrogen as nitrate recommended as a maximum daily consumption limit for infants by the Public Health Service.

Nitrates saturated in soil tend to accumulate in the leaves and stems of certain plants, especially spinach, beets, and carrots. Canners of these vegetables are plagued by the problem of internal corrosion of the cans, caused by an excess of nitrates. These days if the cartoon character Popeye were to eat a steady diet of canned spinach to make himself strong, he would probably turn blue instead. And the old parental admonition would have to be changed to, "Eat your spinach! It'll make you sick."

Still another harmful effect of the high level of nitrates in drinking water and produce is its ability to induce cancer-causing substances known as nitrosamines. Researchers have noted the high incidence of stomach cancer in Japan, Chile, and Iceland, where large quantities of fish are eaten. These fish contain high levels of nitrates because the waters are rich in chemical fertilizers leached from the land. (Other factors which may contribute to the incidence of stomach cancer are the high content of polyunsaturated fat in fish, and traditional habits of eating rapidly.) For Americans, however, nitrosamines present more of a problem in their indiscriminate use by food processors as a preservative for such foods as luncheon meats, salami, hot dogs, ground beef, ham, bologna, and frankfurters.

The Stop-Growth Trick

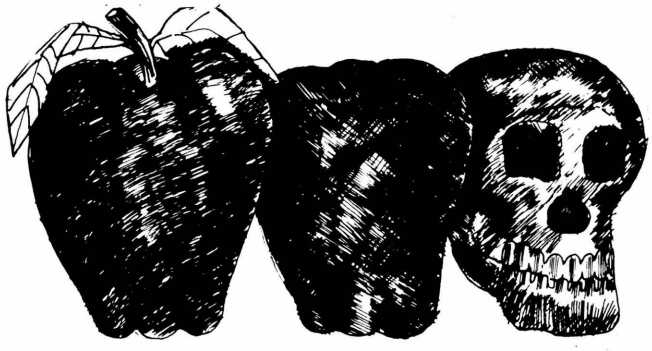
After years of forcing food plants into producing nutritionally inferior abundance, agribusinesses have learned to play a new trick on nature. Just before harvesting, a chemical is sprayed on the leaves of crops that sends them into a state of suspended animation. Absorbed by the foliage, the chemical travels down the stem to the root and stops further cell division — meaning growth. By doing so, the farmers can pick crops at their leisure, and no longer have to wait until harvest time, when vegetables have reached their peak of flavor and nutrition.

There are more than 40 growth-regulating chemicals approved for use by the United States Department of Agriculture, and you can be sure that more are on the way. Maleic hydrazide is used to delay potatoes and onions from sprouting until they get to market, perhaps months later. The growth of sprouts ("eyes") on potatoes and a blossoming stem on onions is part of their natural aging process, which formerly enabled consumers to tell whether they were fresh. Treated this way, all supermarket produce looks fresher than it indeed is.

Maleic hydrazide has been known to cause damage to the liver and nervous system of experimental animals, as well as chromosome damage that results in deformed offspring. Not content with merely deceiving us, growing inferior crops, and polluting the environment, industrial farmers rub salt in our wounds by slipping yet another undesired chemical into so-called "fresh" food. Like most chemicals approved for use by our government, sprout and growth inhibitors have not been adequately tested for safety. Just the fact that these chemicals are able to *stop or delay* the life-processes of a living organism should be cause enough for alarm. The Department of Agriculture should be conducting experiments to answer the question posed by the chemicals' function: Couldn't growth inhibitors also arrest human growth? Until that question can be answered without any doubt, these chemicals should be banned entirely.

Still other chemicals are poured over plants to increase their size. Americans are particularly proud of the size of their produce, and agricultural fairs give prizes to the biggest cabbages, melons, and tomatoes, even though they are not the best. Inside, treated vegetables and fruits tend to be mealy and tasteless, having used up the nutrients they were designed to produce in their own struggle for outrageous growth.

Grapes, for example, are treated with a potentially harmful hormone, gibberellin, which turns them into freak growths. Large and solid, with elongated bodies that adhere tightly to the stems, such grapes lack flavor and juice, which is why many California vintners refuse to use them. Having been bred and conditioned to harvest easily (grapes that fall from the vine are hard to retrieve), they are no longer desirable for human consumption.



Fruit Cosmetics

Citrus fruits are often colored with dangerous coal-tar dyes — like the infamous cancer-causing Red dye No. 2, which was recently banned — to make them look more palatable in the marketplace. Showing a natural green on the rind of an orange is synonymous with loss of sales, according to the citrus fruit industry, and the offending spots must be roughed over. Again, the quality inside is a minor consideration, and the consumer who grates orange peel into food must ingest a potentially harmful chemical.

Pears, apples, plums, and other fruits are coated with wax and mineral oil to make them look more attractive, and to improve their keeping qualities. The F.D.A. approved the direct application of these substances on fruit and vegetables in 1964, after years of permitting only their packaging to be coated. That the wax used was the same as that used to polish floors seemed to cause the guardians of the nation's health little concern. Medical researchers at Johns Hopkins Hospital estimate that fruit eaters ingest about 50 grams of mineral oil yearly, which they believe may account for many unexplained tissue injuries. Germany banned such coating in 1938.

Much of this produce is further sprayed with a toxic group of chemicals known as phenols to preserve them during the long journey to the marketplace. Even in doses as small as one and a half grams, phenols are so lethal that they can induce vomiting, circulatory collapse, convulsions, and decay of the mouth and intestinal tract if swallowed. When phenols were first approved for use in the 1950s, the F.D.A. stipulated that a sign would have to be placed next to the container of the treated produce. The wording, "To Maintain Freshness," was another example of how the food industry will subtly twist the truth and convert a warning into an enticing invitation to buy. Under pressure brought to bear by agribusinesses, the F.D.A. relaxed its ruling and the warning card was discarded. American consumers, it seemed, were again being sold out by the protective agency supported by their taxes. Only the Germans and Italians are given that consideration by their governments which have passed laws that require phenol-treated American citrus fruit to be stamped with the following words: "With Dephenyl. Peel Unsuitable for Consumption."

Can a Catastrophe Be Averted?

The widespread use of chemicals to grow and treat the raw abundance of nature is truly disheartening. As long as we rely on artificial fertilization, it is only a matter of time until all our soil is made useless for growing crops. Ecologists are worried about the arrival of a time when there is no more land to culitvate. It has been estimated that the total destruction of fertile soil and the accompanying disappearance of all plant life on earth would mean the extinction of all animal life within one year. This frightening fact is perhaps the best expression of how dependent humans and other animals are on the proper and natural use of soil.

There is no way to circumvent the life cycles of the soil for very long. They are intrinsic, essential, and far-reaching. We can disrupt them, but if we do, we cannot prevent the ensuing devastation that will be an inevitable result. Only through organic agriculture — working with natural materials that are the core of soil structure — can we cooperate with nature in an intelligent and fruitful manner.

It is time for us to realize that we are only one small part of the food chain. We can never control it, but we can destroy it.

Notes

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From the Desk of

ROBERT BERKO

Editor and Publisher

caveat emptor

620 FREEMAN ST.
ORANGE, N.J.07050
(201) 675-8474

Dear Consumer:

As you requested following the announcement on the Gary Null Show, enclosed is a copy of CAVEAT EMPTOR featuring Gary's article "The Rape of the Soil." Although Gary's by-line was omitted from the article, he authored it in its entirety.

After reading Gary's article, we hope you will review the other material in the issue which we feel you as a consumer will find of particular interest.

CAVEAT EMPTOR reports on every area of concern to you, your pocketbook and your health. In the past, we have exposed advertising frauds by STP, Listerine, Crisco, Campbell Soups and others. We constantly report on mis-prescription and over-prescription of drugs, the medical ripoffs of our society, the razzle-dazzle by the giant oil and gas suppliers that drive up our energy costs, and the mismanagement of government which wastes tax dollars and produces gross incompetence.

These are just a few of the major stories which have appeared in CAVEAT EMPTOR during the past year. Right now we're working on a comprehensive study of the cancer industry, which Gary Null will be chiefly responsible for writing. Gary's coverage will include funding rip-offs, research monopolies, and many other aspects of the fight against this dreaded disease to which the public is rarely exposed.

In upcoming issues, we plan to cover such areas as

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