

Chapter 1

THE FUNDAMENTAL SOURCE OF LIFE

We are what we eat, they say; so all of us should be alarmed by new research from several well recognized research teams that suggest the nutritional value of modern foods isn't just declining, it's collapsing. This research is a warning of imminent approaching danger! We are losing our minerals, the fundamental source and the basic building blocks of life. I'm not just referring to processed foods. I'm talking about fresh fruits and vegetables and basic foodstuffs such as milk, cheese, beef and chicken. Further on I will produce evidence that during the last 60 years, the level of iron, a vital mineral for good health, has dropped 55 percent in the average rump steak. During the same period magnesium plummeted by 21 percent and calcium was also significantly lower. In fact, every mineral, except the three used to fertilize today's farmlands, was anywhere from 10 percent to 40 percent lower than 60 years ago.

We need to take notice that our foods are nutritionally bloated with chemical fertilizers that attempt to invigorate minerally depleted soils. Down on the commercial farm, quantity now triumphs over quality at every turn and, in their desperation to make even a halfway decent living, many of today's Farmers, pushed by their supermarket masters to produce high yields at low cost, seem to have forgotten that

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there was a reason their grandfathers farmed in a different way. Today, the nutritional value of food is lower than ever in history and it will continue a rapid decline in the future. The problem is real and what is so alarming; there is nothing we can do about it! World Governments are concerned about global warming and some effort is being made, slowly I might add, to address this catastrophe. I'm sure global warming could be reversed if every country put forth the initiative to reduce the elements that threaten our atmosphere. But, what are World Governments going to do to remineralize the soils? Absolutely nothing because this is impossible on a world-wide scale. Yes, farmers could fallow and let their land lay idle for a year or two. This would improve the food somewhat but it would not put back the minerals that are depleted. They are gone and they probably will never be back in the top eight feet of the earth's surface, where our plants grow, until the earth encounters another ice age.

Many of our modern day farmers are on a treadmill of dependency on fertilizers, pesticides, insecticides and plant food that creates unnatural growth and very little nutrition due to a lack of minerals in the soil. The food and farm industries don't like to hear about mineral depletion in soils, but the new findings are totally in line with other prominent research that leads to one shocking conclusion. Chemically dependent modern farming methods do not produce nutritious food for several reasons. They are not designed to and can't because of the mineral problem. These mineral deficiencies exist all over the world. I admire the Government of the United Kingdom because they acknowledge, are not ashamed of and admit they have a mineral depletion prob-

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lem. In 2000, the Soil Association quoted figures from the Department of Environment, Food and Rural Affairs, that trace minerals in the UK fruit and vegetables had fallen by 76 percent. Similar figures from the United States Department of Agriculture indicated that this wasn't just a British problem. More about this mineral deprivation will be forthcoming.

Minerals, as we know them, are locked in the earth's crust. As land dwellers, our main link with minerals is through a diet of plants that are able to extract and assimilate metallic minerals from the soil as they grow. Our secondary link is from meats of animals that eat plants. Minerals are extremely important for our well-being, yet they have always been taken for granted, and few of us have given them a second thought. Until a few years ago, no one knew of or cared about the importance of these essential building blocks that make up about 96 percent of our bodies. Now that minerals are enjoying tremendous success in the marketplace, it is only prudent that users learn more about them. Mere knowledge of minerals, their importance and differences may shed new light on why they are so necessary for us to stay healthy. Without minerals, nothing else, including vitamins and enzymes, would benefit. We must also remember that in order for minerals to provide their utmost benefit, we may need to make some lifestyle changes. Extending your life and growing biologically younger is now a rational desire, because we clearly have reasonable processes that will do just that. These changes may include a food selection change, better drinking water, more stretching and exercise, less stress, more rest, less smoking and drinking, and the intake of considerably more

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usable oxygen. A complete spectrum of minerals is the benchmark for ultimate and total nutrition, but not the total answer to excellent health.

In order for us to understand the importance of minerals, we need to first understand how minerals are composed. Vitamins, carbohydrates, proteins and lipids are all compounds of the chemical element known as carbon. Minerals from the earth are elements that are not carbon and which are not bound to carbon. These minerals participate in a multitude of bio-chemical processes necessary for the maintenance of health in human beings and the animals that inhabit our planet. Nearly everything on earth is comprised of minerals. Your ring, belt buckle, lampshade, stove, wallpaper, flooring and your automobile would not exist if there were no minerals. God made man from minerals and man requires minerals for his mere existence. Every other living creature has the same requirement. There would be no life without minerals! Minerals control millions of chemical and enzymatic processes which occur in the human body at all times. The same is true for animals. This knowledge should make us aware of the importance of minerals for mankind's survival.

Although some are very rare, there are more than 100 mineral elements found on earth. Four of these, oxygen, hydrogen, carbon and nitrogen make up 96% of our body. The remaining 4% of our body is basically made up in part of 70 or more minerals, most of which are no longer readily available in our soils.

The world governments and scientific communities have grouped minerals into two categories. Those that are considered to be required in our diets in amounts greater than 100

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milligrams per day are called major minerals. Those that are considered to be required in our diets in amounts of less than 100 milligrams per day are called trace minerals. Both major and trace minerals are in the same class. The only difference is the name and the recommended daily amount (RDA) required according to the World Health Organization. There are only seven major minerals. They are calcium, magnesium, potassium, phosphorus, sulfur, sodium and chlorine. Our bodies should contain significant amounts of each! Trace minerals, on the other hand, are present in the body in very small amounts. It is thought that each makes up less than one hundredth of one percent of our body weight.

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Chapter 2

THE BASIC BUILDING BLOCKS

There are a total of 90 minerals that are most recognized and can still be found in newly erupted volcanic ash and remote mountainous areas of the earth. Of these, 64 are metallic solids, 6 are metalloid, 4 are non metallic, 5 are liquid and 11 are of the gaseous nature. These earthly elements are listed as follows:

Metallic Solids (64) aluminum, arsenic, barium, beryllium, bismuth, boron, cadmium, calcium, cerium, chromium, cobalt, copper, dysprosium, erbium, europium, gadolinium, gold, hafnium, holmium, indium, iodine, iridium, iron, lanthanum, lead, lithium, lutetium, magnesium, manganese, mercury, molybdenum, neptunium, neodymium, nickel, niobium, osmium, palladium, platinum, plutonium, potassium, praseodymium, rhenium, rhodium, rubidium, ruthenium, samarium, scandium, silver, sodium, strontium, tantalum, technetium, terbium, thallium, thorium, tin, titanium, tungsten, uranium, vanadium, ytterbium, yttrium, zinc, and zirconium.

Metalloid (6) silicon, germanium, antimony, selenium, tellurium and polonium.

Non-Metallic (4) boron, carbon, phosphorous and sulfur.

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Liquid (5) cesium, francium, mercury, gallium, and bromine.

Gaseous (11) hydrogen, nitrogen, oxygen, fluorine, chlorine, helium, neon, argon, krypton and radon.

All the minerals listed were available in our soil during prehistoric times. As we are seeing, this is not the case today. Maybe this is the reason nutritional experts who represent world governments point to only 12 or 13 minerals as being necessary for average health and to another 8 or 10 minerals as possibly providing some benefit. I have always wondered why they have never studied the probable necessity of the other 70 or more minerals on earth! Is it possible these other minerals were, and continue to be overlooked because they just aren't available in the surface soil where plants grow? In my opinion, this is a very interesting question and one that could be answered with a resounding "yes"!

Most physicians and many persons live with the mistaken notion that the average recommended diet of 2,000 calories somehow magically supplies all the nutrients essential for a healthy life. If you believe that, you will die prematurely and never enjoy the good health God intended for you to enjoy. I hear all the experts basing good health on a 2,000 calorie per day diet. Several times in the past, I have offered a reward to any physician or person who can supply a diet averaging 2,000 calories per day that also supplies all the RDA of essential nutrients. I was never challenged because it cannot be done!

When you think about it, minerals are bound to play an important part in our lives. After all, rocks are the parent material for soil that is the main source of nutrition for plants, ani-

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mals and ultimately humans. While deficiencies of a single mineral are quite common, what happens if we are marginally low in a number of minerals? We have less energy, we are run-down, we have headaches, we feel bad and we appear haggard. These effects can be easily seen when studies are conducted on those persons who are pure vegetarians, those who consume a large amount of junk food in absence of adequate mineral supplements, or those with poor diets in the absence of adequate mineral supplements.

Also, it is a known fact the absorption of many minerals declines with old age. As the body ages, the assimilation process slows down. Additionally, extreme exertion, stress and exposure to environmental pollution raises our requirements for minerals, especially zinc, calcium and iron. In my own personal research I found and I am amazed at the number of people who are not aware of the importance of minerals relative to good health. Most of them seem to have resigned to the fact that you've lived a full life if you die at the average age of 76 after suffering from several diseases for years prior to death. This is a pity!

In my estimation, a very small percentage of the people in the world are aware of the important part minerals play for ultimate health and they are likely not getting an adequate amount without consuming a full spectrum of mineral supplements. This stems from the lack of minerals in our present day foods as the research teams have reported. To grow and reproduce, plants take up minerals from water and soil, as plants have done for millions of years. According to science, millions of years ago the soil near the earth's surface was saturated with dozens of minerals. At least 84 minerals were available nearly

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everywhere and some areas of the planet did possess 100 minerals. Science has proven the plants of prehistoric times were rich in minerals because there was an abundant supply for them to feed upon from the soil.

When a plant grows it draws the available minerals from the soil reached by its roots. If the soil contains only a few minerals, the plant will only draw a few minerals. We now know the mineral content of plants has been severely altered throughout the last several million years and drastically altered during the last 100 years. When man began to till the soil, wind and rain erosion began to take its toll along with continuous cropping which gradually caused the soils to possess fewer and fewer minerals.

Unfortunately, these millions of years of erosion and centuries of unwise farming practices have made good, mineral rich soil a scarce commodity. Soil tests from all over the world have revealed that our soils are severely lacking in minerals. This in turn produces mineral deficient plants with greatly reduced food value for us humans and the animals we eat.

Man developed chemical fertilizers in the early 1900's by making or mining concentrated forms of nitrogen, phosphorus and potassium rather than using living compounds as they exist in nature. These living compounds include manure and humus. This could be a natural food for a rich variegated blend of bacteria, fungi, molds, yeasts, algae, worms, insects and other tiny organisms. Without an abundant supply of these compounds, which survive only with adequate minerals, our soils become barren and can barely sustain life. The health and survival of all plants, domestic or wild, depends on the health of the soil and its ability to provide a constant supply of min-

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erals. If there is a lack of minerals in the soil, few of the necessary components of good soil exist so plants become stunted, sick and devoid of much of the food value they contained in prehistoric times. If we only go back 60 or 70 years, we find 30 percent more minerals in the soil as we find today. My grandfather raised large herds of cattle. They survived and were very healthy from eating the feed that was grown in those days. No supplements were required! Today's cattle must be supplemented or they will be malnourished, become stunted, sickly, lose their hair and abort their calves, all because of a mineral deficiency in the soil.

When man began using artificial fertilizers containing nitrogen, phosphate and potash, it was learned that crop yields could be greatly increased. But what appeared to be a blessing has turned out to be a curse. According to the Complete Book of Minerals for Health by Rodale Press, man made fertilizers upset the delicate balance of minerals and organisms in humus rich soil by killing off the beneficial bacteria, and lacking in the naturally occurring minerals, they are less available to plants. Chemical fertilizers can also saturate plant roots with too much of one nutrient making it difficult for plants or crops to pick up and absorb other minerals they need so badly. If minerals are not available to be pulled from the soil by plants, the nutritional value of our food is drastically diminished. This is the reason our present day foods would hardly keep a rat healthy.

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Chapter 3

THE MINERAL LOSS IS REAL

I am surprised at the number of nutritionists, medical doctors and even some governmental officials who do not know or want to acknowledge that mineral depletion of our soils has lessened food value. This has prompted me to publish important portions of a report and study done by two prominent English Doctors and Food Scientists, R.A. McCance and E.M. Widdowson. This is a study on the mineral depletion of the foods available to the United Kingdom over a period from 1940 to 1991. The data used as a basis of this study was published in five editions, initially under the aethesis of the Medical Research Counsel (1940, 2, 3, 4) and later, the Ministry of Agriculture, Fishery and Foods (5, 6) and the Royal Society of Chemistry.

Part of the analysis includes the mineral content in milligrams per 100 gram portions of that food. The analysis provided information on the amounts of Calcium, Magnesium, Potassium, Phosphorous, Iron, Copper and Sodium. It was found that only certain foods within the categories of Vegetables, Fruits and cuts of Meat could be readily traced over this 51-year period. The result of comparing data available in 1940 with that in 1991 demonstrates that in every subgroup of foods investigated, there has been a substantial loss in their mineral content.

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Background; In 1926, Dr. R.A. McCance undertook, with a grant from the Medical Research Council, to analyze raw and cooked fruits and vegetables for their total 'available carbohydrates'. So began a program of analysis which resulted, in 1940, with the publication of the Medical Research Council's, Special Report No: 235 entitled "The Chemical Composition of Foods". This report represented the culmination of a comprehensive research program on the chemical composition of foods available to the British public. 100 grams of different Vegetables, Fruits, Cereals, Meats, Seafood's, Beverages, Beers, Sugars, Preserves, Sweetmeats, Condiments, and Dairy Products were analyzed for their organic and mineral content as well as portions of traditional British food recipes including Cakes, Pastries and Puddings.

This, then, was the first determined effort by a number of dedicated Doctors and Food Scientists headed by McCance and Widdowson to establish definitives by which to quantitatively compare and contrast individual dietary intakes. This 1st Edition was subsequently updated by the Medical Research Council in 1946 and 1960 as new foods became available, analytical procedures improved and new information regarding constituents of food (e.g. vitamins/amino acids, etc.) were considered as being needed. Over the next 30 years, the need to continually update information resulted in the 4th and 5th Editions, which were published in 1978 and 1991, respectively under the title of 'The Composition of Foods', this time under the auspices of the Ministry of Agriculture Fisheries and Food in conjunction with the Royal Society of Chemistry.

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On comparing and contrasting the 1940 figures with the 1991 figures, quite a number of variables exist; enough in some instances such as cereals, to make comparisons meaningless. Equally, there is a wealth of data variable, which provides very real insights to the change in food values over the 51 years between 1940 and 1991. The 1940 data often incorporates work published in 1929, 1933 and 1936; similarly the 5th Edition published in 1991 contains data that originates in 1987.

The Food Analysis: In the first Edition, the foods were analyzed for water content, total nitrogen, protein, fat, available carbohydrates, mineral content and acid base balance. In the context of this report, only the mineral analysis was of interest and considered. The minerals assayed for were Sodium (Na), Potassium (K), Magnesium (Mg), Calcium (Ca), Phosphorous (P), Iron (Fe), Copper (Cu), Nitrogen (N) and Chlorine (Cl). The amounts were recorded in milligrams per 100 grams of the food. Details such as a description of the food, where it was sourced, how many samples were used, its preparation (who/with peel/top leaves, etc) and its condition, raw or cooked (and if so, how and for how long), was often recorded for each item of food. In this way, like could be compared to like with regards to the variety of food and the cooking time. With foods where both raw and cooked values were given, the raw value was the one selected.

In later Editions, information on the dietary fiber, energy values and the vitamin content of foods was incorporated; the nitrogen content was dropped and a more complete break down of the amino acid composition was given. Zinc

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analysis was conducted in the 1978 Edition and Selenium, Iodine and Manganese in the 1991 Edition. Obviously, the analytical procedures changed for the years between 1940 and 1991. However, to quote the Forward of the 5th Edition "Those methods (of 40 years ago) were no less accurate than the modern automated ones, but they took a much longer time".

Presentation of information; The Vegetables selected represent those that were described by the authors as being of the same variety e.g. runner beans (raw) in 1940 with runner beans (raw) in 1991. Many of the vegetables on original lists were not subsequently analyzed i.e. artichokes, butter beans, celeriac, endive, etc. While others such as peppers, yam, plantain, okra, garlic, fennel, etc. were only analyzed in later years.

Of the original 28 raw vegetables and 44 cooked vegetables detailed in the 1st Edition, 27 vegetables (together with mushroom) could be traced through the 5th Edition. In order to make the summary of results easier to read, these vegetables were grouped in order of their dominant characteristic i.e.: bulb, root, etc and the results presented in Table 1. The individual values are presented in Appendix 3. In addition to the individual percentage change in the minerals Na, K, Mg, Ca, P, Fe and Cu, the change in the ratios between Ca:P, Na:K, Mg:Ca and Fe:Cu were also calculated. Where the vegetable has been boiled, it is usually in distilled water, normally with no salt. It is interesting to note the change between 1940 and 1991, in what was considered

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an appropriate time to cook a vegetable i.e. for broccoli in 1991, it was 15 minutes, and in 1940 it was 45 minutes! When comparing the results of the analysis, it is pertinent to bear this in mind.

In the 1960 and 1976 Editions, Zinc was assayed for the first time: where this value has been given, it has been included in the table at the appropriate date. Also, within the 3rd and 4th Editions, certain 'new' vegetables were analyzed.

Fruits - In a similar manner to the vegetables, 17 fruits were 'followed through' from the 1940 to 1991 Editions and changes in their individual mineral content recorded and presented in a summary sheet.

Meats - With regards to comparing Meat, Poultry and Game (1940) with Meat and Meat products (1991), there were, surprisingly, only 10 items that were readily comparable. This situation was created, to quote from Edition 5, "The conformation of farm animals had altered and methods of butchering had changed since the 1930's".

Discussion of results; **Vegetables** - With most vegetables, when they are harvested, it is usually the whole plant that is taken. An exception would be the 'Pod and Seeds' and 'Fruit' groups where there is the possibility of the rest of the plant being plowed back into the soil. Consequently, vegetables are probably the best indicators of change relating to the mineral depletion of soils. If the soils become depleted in minerals, the minerals are simply not there to become incorporated within the plant structure, which ultimately

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affects the plant's 'health' and consequently, the farmer's profitability when harvesting the crop.

Obviously, this situation has been known to farmers since the land was first cultivated and hence the tradition in primitive cultures to move on after 10 years growing at one site, or to regularly replenish the nutrients with fertilizers, or to leave the fields to 'fallow'. It was discovered early in the 1900's that Nitrogen, Phosphorous and Potassium were the main minerals required for plant growth. These minerals, together with adequate water, light and carbon dioxide seemingly allowed for optimum growth. Consequently, since the 1920's, NPK fertilizers have been routinely added to agricultural soils in the UK. Calcium, in the form of lime and Iron are also sometimes added to fertilizers.

The base figures used in the tables presented must, therefore, not be considered as a 'true, unadulterated' representation of the mineral content of any specific vegetable. In this regard, it is interesting to note that in their introduction to the vegetable section of the 5th Edition, the author's state, "Any differences arising from the method of cultivation, for example 'organic' methods appear to be small and inconsistent". Also, in the introduction of the 5th Edition, page 1, the authors acknowledge, "the nutritional value of many of the more traditional foods has changed. This can happen when there are new varieties of sources of supply for the raw materials with new farming practices which can affect the nutritional value of both man and animal products". Despite these remarks however, the summary provides evidence of an alarming change over 51 years. This data illustrates that there has been a severe depletion in the mineral content of the vegetables available.

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During this time, there has been an average :
Loss of 49 percent of their Sodium content
Loss of 16 percent of their Potassium content
Loss of 24 percent of their Magnesium content
Loss of 46 percent of their Calcium content
Loss of 27 percent of their Iron content
and a massive **76 percent loss** of their Copper content

Perhaps not too surprisingly, given the regular use of NPK fertilizer, the only exception is Phosphorous, which shows a 9% rise. These losses include the analytical results of vegetables, which were boiled at least twice as long in 1940 as in 1991 with the probable ensuing greater loss of mineral content. The individual analysis tables provide insights as to the ranges of highs and lows within these figures. The greatest individual mineral losses (mg per 100 gm sample)

Sodium - Runner Beans 6.5 to trace (nearly 100% loss)

Potassium - Spinach (boiled) 490 to 230 (less 53%) Potatoes 568 to 360 (less 36%)

Phosphorous - Spinach (boiled) 93 to 28 (less 70%) Potatoes 0.15 to 0.8 (less 47%)

Magnesium - Carrots 12 to 3 (less 75%)

Calcium - Broccoli (boiled) 160 to 40 (less 75%) Spring Onion 125 to 35 (less 74%)

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Iron - Spinach (boiled) 4 to 1.6 (less 60%) Swede 0.35 to 0.1 (less 71%)

Copper - Spinach (boiled) 0.26 to 0.01 (less 96%) Watercress 0.14 to 0.01 (less 93%)

Perhaps two of the most concerning results relate to two regularly used vegetables in the British diet, 'Old' Potatoes and 'Old' Carrots. During the 51 year period, carrots lost 75% of their Magnesium, 48% of their Calcium, 46% of their Iron and 75% of their Copper, while the traditional 'spud' lost 30 percent of its Magnesium, 35 percent of its Calcium, 45 percent of its Iron and 47 percent of its Copper. You would have needed to eat 10 tomatoes in 1991 to have obtained the same copper intake as one tomato would have given you in 1940.

In addition to the overall mineral depletion changes recorded, there has also taken place significant changes in the ratios of minerals to one another. Given that there are known critical ratios of certain minerals within our physiology (Ca:P, Na:K, Mg:Ca, Fe:Cu), the changes in these ratios were calculated for each individual vegetable. An overall summary is given below:

	1940	1991
Ca:P	1 : 2	1 : 1
Na:K	1 : 10	1 : 17
Mg:Ca	1 : 4.8	1 : 3.4
Fe:Cu	1 : 10	1 : 30

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The figures, therefore, represent a significant change in the ratios between the minerals, which in turn could well have a significant influence on our health through the body's biochemistry.

Vegetables (1978-1991), Unfortunately, only 7 vegetables could be traced over this 13 year period. The results are again disconcerting; during this time there has been an average:

- Loss of 39 percent** of their Sodium content
- Loss of 16 percent** of their Potassium content
- Loss of 14 percent** of their Phosphorous content
- Loss of 33 percent** of their Magnesium content
- Loss of 40 percent** of their Calcium content
- Increase 6 percent** of their Iron content
- Loss of 72 percent** of their Copper content
- Loss of 59 percent** of their Zinc content

Fruit, The analytical results of 17 fruits traced through from 1940 to 1991, a summary is given below:

- Loss of 29 percent** of their Sodium
- Loss of 19 percent** of their Potassium
- Loss of 2 percent** of their Phosphorous
- Loss of 16 percent** of their Magnesium
- Loss of 16 percent** of their Calcium
- Loss of 24 percent** of their Iron
- Loss of 20 percent** of their Copper
- Loss of 27 percent** of their Zinc

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Unlike a vegetable, when a fruit is harvested, the whole plant is not taken. Consequently, the changes evident are not so startling. Nevertheless, there are significant overall losses in mineral content. Also, when individual fruits are considered, you would have needed to eat 3 apples or oranges in 1991 to supply the same Iron content as 1 apple in 1940. It is also pertinent to note that the 10 fruits assayed for Zinc in 1978 show an overall 27% loss in their 1991 values. Blackcurrants, Olives and Tangerines have the same values in 1991 as given in 1940.

Meats, 10 items of meat could be compared. It is interesting to note that some analysis given in the 5th Edition are exactly the same as given in the 1st, these include Pork Loin (grilled), Rabbit, Veal Filet, Venison (roasted), Tripe (dressed), Sheep's Tongue, Ox Tongue, Grouse, Goose, Partridge, Pheasant and Pigeon. A summary of the mineral losses is given below; there has been an average:

- Loss of 30 percent** of their Sodium
- Loss of 16 percent** of their Potassium
- Loss of 28 percent** of their Phosphorous
- Loss of 10 percent** of their Magnesium
- Loss of 41 percent** of their Calcium
- Loss of 54 percent** of their Iron
- Loss of 24 percent** of their Copper

Again, there is a significant loss in all minerals assayed for, which could reflect the fact that these animals are fed on produce that itself is minerally depleted! The alarming 41% loss in Calcium could be a spurious reading due to the diffi-

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culty of extracting all bone from the flesh in the original analysis but the 54% loss of Iron cannot be so readily explained. Copper in meats and meat products were not routinely assayed for in 1940 hence, the lack of data.

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Chapter 4

SUPPLEMENTING IS ADVISABLE

Based on the information from the previous chapter, it's plain to see that there definitely is a depletion of minerals in our foods as years passed. This test was done in 1991 and I'm certain we'd get results revealing another 10% to 15% reduction if similar tests were conducted today.

Where can we get the minerals we need if they are not available in our food supply? Well, about the only method available is to initiate a program of mineral supplementation. That is, take food supplements containing a large number of minerals. Various mineral supplement formulations can be purchased from hundreds of suppliers under literally thousands of labels. However, what the industry considers a large and adequate supply of minerals usually is no more than 16 or 18 minerals at best. The most highly advertised mineral on the market today contains only 18 minerals, as listed on the label, and they are metallic minerals that supposedly assimilate very poorly.

Most of the more popular mineral formulations available today contain no more than 10 to 15 minerals because they are derived from ground up rock and soil and ancient sea beds like the Great Salt Lake in Utah. This type of mineral is known as a **metallic, hydrophobic mineral!** Basically, it will not interact with water because it is not water-soluble. The

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type of mineral that comes from a plant has been assimilated or digested by the plant and is known as a water-soluble, **plant derived, hydrophilic mineral.** This is the type of mineral that is most beneficial for all living creatures.

The few metallic minerals that come directly from the earth are hard to digest or assimilate. Many nutritional experts, doctors and food chemists believe no more than 5% or maybe up to 8% of metallic minerals are actually assimilated by the human body. This lack of assimilation occurs because the hydrochloric acid in our stomach isn't strong enough to totally dissolve metals during the normal 15-hour human digestive cycle. The balance, or up to 92%, merely passes through the waste system without benefit.

Minerals, even if they are metallic, are of significant value to balance and metabolize our bodily functions. However, you could not live on soil or rock because it is not alive or enzymatically active like plant derived minerals from raw plants. Plant derived minerals that have not been altered by man made chemicals are, from a medical standpoint, enzymatically active or living minerals.

What about vitamins? Most of us have been hearing about vitamins since we were children. And even today we hear authoritative sources say, be sure to take your vitamins, but seldom do you hear anyone say, be sure to take your minerals. Your mother probably reminded you to take your vitamins, but I doubt she ever mentioned minerals. She didn't mention minerals because she wasn't aware of the necessity or importance of minerals. Few people were aware of the importance until about thirty years ago. Even today many doctors and nutritionists thumb their nose at the thought of

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mineral deficiencies in foods. They only think about and recommend vitamins because that's what they were taught. Vitamins are sometimes expected to do more than they are capable of doing. Our bodies can go far longer suffering with a deficiency of vitamins than they can with a deficiency of minerals. Did you know all the vitamins in the world would do us little good without minerals? The minerals in our bodies are so important that the body goes to complicated, even desperate lengths to maintain their balance. If a cell is deficient in a single mineral, it will suffer from a loss of several minerals.

A vitamin can be broken down into its basic elements that are carbon, oxygen and hydrogen. Basically, vitamins are a group of chemically unrelated organic nutrients that are essential in small quantities for normal metabolism, growth and physical well-being. Vitamins must be obtained through diet since they are either not synthesized in our bodies or are synthesized in inadequate amounts.

Fortunately today's plants do supply a reasonable amount of vitamins. However, if you lack vitamin A you may have dry skin, kidney and gall stones, sinus problems, digestive problems and many more symptoms. A lack of vitamin B can cause chronic tiredness, loss of vitality, poor appetite and nervousness. A lack of vitamin C can cause shortness of breath, headaches, tender joints, low resistance to infection, restlessness and digestion problems. A lack of vitamin D can cause a pot belly, constipation, rickets, convulsions, poor teeth and curvature of the spine.

Many people have a misconception about vitamins. Thousands have told us they will only use food supplements with "natural vitamins." The so-called natural vitamins do not

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exist in supplements. Natural vitamins only come from plants. All commercially sold supplement vitamins are synthesized in a laboratory. Therefore, they cannot be called "natural vitamins."

There is a harmony between vitamins and minerals and even though vitamins are nearly ineffective without minerals, they both are necessary. Minerals are quite different from vitamins in their structure and the work they do, but the two enjoy an excellent working relationship. According to Rodale's Complete Book of Minerals for Health, "minerals create a healthy environment in which the body, using vitamins, proteins, carbohydrates and fats can grow, function and heal itself." I like the portion "heal itself". I know this is possible if a body gets more than the 18 minerals found in most supplements or the 16 to 20 minerals found in today's foods. It's a known fact that a complete spectrum of minerals promotes better health as it adjusts the pH level of bodily tissues. What is a complete spectrum of minerals? I believe a mineral composition or a mineral solution cannot be considered a "complete spectrum of minerals" unless it contains at least seventy minerals. This large number of minerals has to include many of the "rare earth" minerals or there would not be a total of seventy. These rare earth minerals are necessary, in addition to the more commonly known minerals, to stabilize the acid level in tissues. Most all bacteria and viruses and even tapeworm thrive in and prefer an environment of high pH or alkaline nature. A complete spectrum of minerals lowers the pH in our digestive system, which raises the hydrochloric acid level, thereby inhibiting bacterial and viral replication. Both extra and intracellular fluids function properly only because of a care-

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fully maintained ratio of minerals, in conjunction with vitamins, in an acidic solution. The interaction of the two enables the body cells to take in nutrients and dispose of toxins that are the by products of that metabolism.

A lack of minerals inhibits detoxification. Detoxifying occurs whenever the body begins to expel and eliminate anything that causes the body to be toxic. This can and does occur naturally, but if you lack minerals, the detox will never be thorough and complete. The poisons will only be completely expelled if you have many more minerals than what you can obtain from today's foods and from most commonly known and nationally advertised mineral supplement brands. A strong immune system depends on a clean detoxed body and this can only be obtained from thorough excretion of wastes and anything that is not fully compatible with your bodily functions. Normal detoxing at a physical level can range anywhere from extremely mild bowel or kidney movement, skin rash, aches and pains to very intense discomfort. This normally subsides within a few days. In the area of detoxification, a complete spectrum of at least 70 minerals makes an incredible difference.

Recently, we've begun to hear a lot about enzymes and antioxidants and their importance. Enzymes are extremely important for our metabolic functions, but again they do us little good without minerals. Conversely, some enzymes and vitamins are helpmates to minerals. Some minerals are eager workers, but to perform best they need an enzyme or a vitamin or two to stir them into action. As an example, vitamin C can triple iron absorption. Calcium absorption is impossible without vitamin D and some magnesium. Many minerals act as coenzymes,

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the so-called catalysts in chemical reactions with vitamins. This means they function as spark plugs, starting chemical actions where billions of chemical reactions take place every day.

At this point you may ask yourself a question. Is all this publicity about mineral deficiencies and the lack of minerals really true and if so, which minerals and what kind of minerals should I be using or should I even consider taking additional minerals? In my opinion, at least part of your question can be answered with this little story.

Many movies have been made about the migration of the American settlers in the early 1800s. We all know they had to cross the great plains of the United States. What we don't know or realize is that few of these people settled in one place for a long period. Every few years, they would have to pick up and move. They'd start a small farm in the Midwest such as Iowa, Missouri, Kansas or Nebraska with a milk cow, a couple of pigs, maybe some sheep and a few children. After a few years, Dad would always be constipated and the cow would quit giving milk. The cucumber plants, tomato plants and farm crops would not grow, so they would almost starve. If they were lucky enough to make it through the winter, they'd load all their belongings into a covered wagon and move west with the milk cow in tow. When they found a suitable place they started another farm. In a few years both Mom and Pop would be constipated all the time. The crops, cucumbers and tomatoes would quit growing and the cow would again quit giving milk. And, if they survived the winter, they'd load everything in a wagon and move farther west again.

What was the problem? The soil was being depleted! If they didn't have enough land to allow some to be idle from

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time to time, the land would become barren due to a lack of minerals. Crops and plant growth took too many minerals out of the soil. The only way to eliminate this problem was to own a piece of bottomland near a river. Only the lucky farmers lived on the bottomland. When it flooded, they'd get new topsoil and silt and additional minerals from miles upstream. So, if they were fortunate enough to have bottomland they didn't have to move. Why? The fertilizer would come to them during the flood. But if they were out on the prairie with no river or bottomland, they would be required to move, otherwise the entire family would become malnourished and nearly starve. This settling and moving process occurred many thousands of times during the last 200 years. This was necessary because the early settlers were actually strip-mining the nutrients from the soils. And if there were little or no nutrients in the soil, their crops and gardens could not produce due to a lack of nutrients and minerals in the soil. Depleted soils cannot possibly supply adequate nutrients to our food chain and as the preceding tests revealed; our soils are becoming more depleted every year.

Commercial fertilizers were introduced in 1908. Was the soil depletion problem solved? Not by a long shot! Study any commercial fertilizer by reviewing the ingredients listed on the package. You will see nitrogen, phosphorus and potassium (NPK) and most times, nothing more. It's a known fact that you can raise most crops and plants with what little nutrients are still in the soil, and NPK. Most farmers never put back more than 4 minerals. In the first place, more than 4 to 6 minerals would be nearly impossible to obtain. Secondly, if they were obtainable and if farmers attempted to put that many back into the soil, they would soon be bankrupt. We

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now understand no more than 12 or 13 minerals are required to raise large, red, juicy tomatoes, but many times if you were blindfolded while eating, you would have trouble identifying the tomatoes due to a lack of taste. The lack of taste is due to a lack of minerals that causes a lack of Brix. This lack of minerals is the reason you would have to eat four carrots today to get the same amount of minerals as one carrot supplied 60 years ago. Soil depletion is the only reason today's plants contain no more than 16 to 20 minerals, on average, compared to more than 70 minerals thousands of years ago.

According to research in the animal husbandry field and The National Science Foundation, animals require at least 45 minerals, 12 essential amino acids, 16 vitamins and 3 essential fatty acids. However, the average land grown animal feed only contains on average about 18 minerals and when mineral levels are down, so are amino acids and essential fatty acids. According to Gary Price Todd, M.D., the human body requires at least 60 minerals for optimal health and basically the same other essentials as animals. But, as stated earlier, only about 18 minerals are available in any kind of quantity in most of the food we eat today. We know plants can make vitamins, amino acids and varying amounts of fatty acids if they are healthy from being grown in soils containing abundant minerals. If the soil lacks minerals, the plant is stunted because a plant cannot make minerals. Dr. Gary Price Todd says, "Sick soil causes sick plants, which causes sick animals, and ultimately sick human beings." One reason our plants are sick is due to pesticides and insecticides. Forty years ago it was necessary to develop these poisons in order to kill off insects and pests in an effort to prevent them from destroying crops that had weak plants. Had the

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plants been healthy, like they were in prehistoric times, the insects would not have bothered them. Most scientists and agronomists conclude that a healthy, vigorously surviving plant can adequately defend itself against any of nature's attacks, including insects and worms. This can occur only if the plant has numerous minerals available to draw from the soil.

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Chapter 5

THE PURPOSE THEY SERVE FOR LIFE

If at this point, you still do not grasp the fact minerals play an important role in our lives, you might ask the question, what are minerals like calcium, copper and iron from rocks in earth's crust doing in our living, breathing, active bodies? A lot - Let me mention a few examples. Calcium is essential for all organisms and is found in the cell walls of plants, all calcareous tissues and the bones of all mammals. Calcium is the fifth most abundant mineral element in the earth's crust. Calcium is also the most abundant mineral in the human body comprising approximately two percent of the adult body weight.

Calcium is a construction worker so to speak. It is a builder. Calcium gives bones and teeth their strength and rigidity, and also helps nerves to function properly. As a construction worker, it builds strong bones. It is important to know that calcium, to be absorbed, must be in water-soluble form by the time it reaches the small intestines. Calcium needs acid for proper assimilation. Without the proper strength acids, calcium is not dissolved and cannot be utilized. This is one reason a complete spectrum of minerals, with a low pH, is so important. But even more importantly, if utilized properly and in early stages after the foundation is firm, calcium will help build strong bones that will endure a

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life of havoc. **To save your daughter or grand daughter from bone crippling osteoporosis in old age, you should begin giving her extra minerals and especially calcium between five and ten years of age.** That startling advice comes from research by pediatrician Steven A. Abrams at Children's Nutritional Research Center in Houston, Texas.

It's critical that young girls get lots of minerals and extra calcium several years before they reach age 11. That's because "most bone forming activity occurs in the years just before and just after the start of puberty," which on average is age 10, says Dr. Abrams. Menstruation usually begins two or three years later. By age 15, most bone forming activity has come to a halt, he says. The higher the bone mass, the lower the odds of osteoporosis later in life. As we get older and become less active, bone density becomes a problem. Being inactive accelerates bone loss contributing to osteoporosis. Although it's regarded as a woman's condition, 20% of osteoporosis sufferers are men. Men tend to develop osteoporosis a few years later than women, because initially they have more bone mass. So, many more minerals than what is available from foods or commercial metallic formulations are necessary for everyone at all ages. Remember to supplement your calcium intake with adequate amounts of vitamin D, which is necessary to assimilate the calcium. Incidentally, some very credible sources say Chromium Picolinate, used along with a complete spectrum of minerals, can really benefit the user. In my opinion, nothing can produce more results in this area than a complete spectrum of minerals. Some calcium poor symptoms include slow blood clotting, sluggish blood circulation, afternoon headaches, varicose veins, hemorrhages, soft bones, cysts and sores that do not heal well.

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Iron is part of a substance called hemoglobin, which carries life sustaining oxygen to our cells. Iron, along with copper appears to have participated very closely together in the evolution of aerobic life, maybe as long as three billion years ago! Iron is rather poorly absorbed and the condition most commonly associated with iron deficiency is iron deficiency anemia. Personally, I believe iron is very important regardless of what some health officials and the media reports say, especially if the iron comes from plants. Iron is stored in the bone marrow and liver. Symptoms of iron deficiency include listlessness, fatigue, memory problems, heart palpitations, tendency to head colds, dull hearing during menstruation, anemia, asthma, burning of soles of feet, swollen ankles and pains in shoulder joints as well as cold hands and feet.

Copper, Zinc and Cobalt, among other minerals are necessary for enzyme activities such as food digestion. Copper also plays a significant role in respiration. Copper may help prevent cancer, especially of the liver. Copper, like Zinc, is involved in healing. It is necessary for hair, skin and cell growth. Copper deficiency is widespread and numerous diseases caused by a copper deficiency are quite common. Copper deficiencies have also been linked to loss of hair and lowered resistance to colds.

Sulfur may be one of the most important minerals for humans. It is a non-metallic mineral, widely distributed in nature. It is an important structural atom in many proteins and small organic molecules. Sulfur is involved in the quality and maintenance of many types of tissues and structures within the body including hair, fingernails and skin. It combines with nitrogen, carbon, hydrogen and oxygen to build

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protein, a main ingredient of muscles, skin and organs. It has been called the "beauty mineral" because it enhances those body externals. **Sulfur also plays an important role in the production of insulin.** Diabetics should consume a goodly amount of sulfur. We know of many Diabetics who have virtually eliminated the disorder after consuming a mineral composition containing large amounts of sulfur for six to twelve months. Sulfur has also been used with favorable results in treating arthritis because it is an integral part of the amino acid, cystine. It aids in healing surface wounds and skin disorders such as psoriasis and eczema. I'm convinced none of us get enough sulfur and I believe the RDA should be increased by at least thirty times. Look for foods and mineral products that contain high amounts of sulfur.

Sodium and Potassium regulate water balance and aid in digestion. If it were not for these two minerals, we would bloat or swell up with water or we would dehydrate, dry out or die. Potassium is an extremely important mineral for regulating bowel and urinary function. Many people mistake and associate sodium with salt. Sodium is one of the seven major minerals and the RDA for an adult is 2,500 milligrams per day. Sodium is not salt! Salt is made up of sodium and chloride. Sodium and potassium poor symptoms are numerous, such as; gout, indigestion, constipation, bloating and stomach ulcers.

Phosphorus is also an extremely important essential major mineral, but it receives little attention from many nutritionists because, supposedly, it's abundantly available in all foods. Due to soil depletion, this is not necessarily true today. Our bodies contain about two pounds of phosphorus that, when tied to calcium, helps give strength and rigidity to

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bones and teeth. It also controls energy release. Phosphorus has more functions in the body than any other mineral. A lack of phosphorus causes us to overeat. In fact, according to the Complete Book of Minerals for Health, if our body has too little phosphorus, we'd have to eat practically non-stop just to maintain basic metabolism. Maybe this is a reason for so much obesity around the world! I have been studying overweight people for twenty years. I believe most are overweight because they are minerally deficient in general and severely deficient in phosphorus. They continually eat more and more attempting to satisfy a craving, which is caused by a lack of phosphorus and other minerals. The excess food makes them become more overweight, which in turn requires more minerals to function, thereby requiring more food in an attempt to satisfy an even greater craving. This can continue to perpetuate. Most overweight people have a toxic body and a complete spectrum of minerals can greatly reduce that toxicity.

I have witnessed thousands of people lose weight naturally after they began to consume a full spectrum of 70 or more minerals on a daily basis. People don't eat as much when they get more minerals. They detoxify and they digest their foods much more thoroughly as well. Better digestion means less constipation, more energy, less sluggishness, more motivation, better attitude, etc. Minerals make it happen! The proof is as obvious as sunlight. Phosphorus poor symptoms include neuralgia, impotence, bronchitis, jaundice and paralysis.

Our body is made up of about 100 trillion cells, each one bustling with activities that depend on magnesium.

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Magnesium is essential to all living creatures and has electrochemical, catalytic and structural functions. In fact, next to potassium, magnesium is the most plentiful mineral inside each cell. Magnesium is closely related to calcium in regulating and controlling nerve impulses, especially the heart beat. Magnesium helps deliver energy by activating the production of a special substance called adenosine tri-phosphate which extracts energy from the foods we eat and delivers it to each and every one of those billions and billions of cells in our bodies, whether they are in the heart, lungs, kidneys, brain, blood or bone. Magnesium is one of the most important major minerals and a deficiency in it appears to be the basic cause of atherosclerotic calcium deposits. A lack of magnesium may cause catarrhal discharges, body gas, yellowish whites of the eyes, jaundice, pale urine and diarrhea.

Chlorine is another one of the major minerals! Chlorine's intended use from Mother Nature was not to disinfect our water or swimming pools, but to help digest our foods. Chlorine is found in virtually all of our foods. As a part of hydrochloric acid, chlorine rallies the digestive juices of the stomach to help digest proteins. A combination of hydrochloric acid and powerful digestive enzymes gobbles up food particles, mashing them into a semi-fluid pulp called chyme, which is squirted into the upper intestine for final digestive breakdown. Chlorine helps detox the liver and it's a terrific stomach anti parasitic. It helps eliminate anaerobic bacteria. Here is something of importance relative to chlorine. Chlorine in water is entirely different than chlorine in food. The chlorine used to disinfect water is an activated form of chloride with absolutely no nutritional value

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and the chlorination of water may, in fact, cause some serious health problems.

The previous review of some of the more recognizable minerals is important, but we must think about some of the rare earth minerals most people don't recognize. Just because few, if any, tests or studies have been conducted, they should not be overlooked. I truly believe these "unheard of" minerals play a very important part in overall good health. Try to look for plant derived mineral supplements with most, if not all of the following minerals: Boron, Barium, Beryllium, Bismuth, Bromine, Carbon, Cerium, Cesium, Cobalt, Dysprosium, Erbium, Europium, Fluorine, Gadolinium, Gallium, Holmium, Indium, Iodine, Iridium, Lanthanum, Lithium, Lutetium, Neodymium, Niobium, Osmium, Palladium, Praseodymium, Rubidium, Samarium, Terbium, Thallium, Thorium, Vanadium, Ytterbium, and Yttrium.

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Chapter 6

THE IMPORTANCE OF MINERALS

I could have written much more about major minerals, but what about trace minerals? According to our government, the trace elements that are required for human health are iron, iodine, copper, manganese, zinc, molybdenum, selenium and chromium. My experience with minerals over the last twenty-five years has basically proven we need many more minerals than those proposed by our government or the World Health Organization. I believe all of the rare earth minerals mentioned in the previous chapter are extremely important for protracted health, especially if they were available from plants.

Minerals initiate, regulate and control every organ and function in your body. Proper breathing depends on minerals. Mental and physical ability depend on minerals. Heart and blood pressure stabilization is directly related to minerals. Although other factors play a part in high blood pressure, minerals are the key to regulation. When the body or any organ becomes stressed out, it will require more nutrients and oxygen to keep it going. Minerals help the body better utilize the oxygen it receives. When stressed, the heart has to pump blood more forcefully to supply enough blood to the organ that needs it. The stronger the heart is required to pump, the higher the systolic blood pressure will be. The

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diastolic pressure may also go up. To get a true reading, medical professionals require you to be relaxed or at rest. The blood pressure in a relaxed or rest state is called "basal" blood pressure. People in the hypertension state usually have the average systolic pressure above 140 and the diastolic pressure above 90.

When a person takes in excessive amounts of salt, the body may have to remove the excess to avoid poisoning. The body will need to collect more water because the salt has to be dissolved in liquid. The kidneys will have an additional workload in order to get rid of all the excess salt and water. This means the kidneys will need more energy and nutrients, especially minerals to keep them functioning properly. During the salt and water elimination process, the systolic pressure will go up because more blood has to be pumped out of the heart. If the kidneys cannot perform properly due to a lack of nutrients, even when the blood pressure is raised, the body stores the salt water and the ankles or legs will swell. Also, all the excess body tissue, especially fat, will require more energy to feed the extra fat in the body. This is the main reason obese people should give strong consideration to losing weight and consuming more minerals. A full spectrum of minerals will help them lose weight.

Mineral insufficiency and trace element insufficiency problems are actually more likely to occur than are vitamin insufficiency situations. Those at increased risk of such insufficiencies include people who eat low calorie diets, the elderly, pregnant women, and people on certain drugs (such as diuretics), vegetarians and those eating foods from areas where the soil is extremely deficient in certain minerals. The

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soil of Alaska, for example, is very rich in selenium, while the soil in certain parts of China and New Zealand is very poor in selenium. Thus, you can eat foods from those areas, eat a perfectly "balanced" diet, as recommended by most medical doctors, take the average mineral supplement, and still develop severe mineral deficiencies or trace element deficiencies that can only be averted through dietary change and supplementation with a complete spectrum of minerals.

Sub-optimal intake can be due to factors other than soil depletion. These factors are as diverse as the effects of acid rain and the over refining, over processing of foods. Our vulnerability to even minute dietary imbalances in minerals can be appreciated by comparing, to begin with, our daily mineral intake (about 1.5 grams) with our total intake of carbohydrates, proteins and lipids (about 500 grams). Thus, our mineral intake represents only about 0.3 percent of our total intake of nutrients, yet minerals are so potent and so important that without them we would not be able to utilize the other 99.7 percent of foodstuffs and would quickly perish.

There has been a strong tendency on the part of some dietetic and medical professionals to discourage people from taking more than the RDA's (Recommended Daily Allowances) for minerals that can be obtained, they say, in the typical American and European diet. Unfortunately, numerous studies have shown repeatedly that this is very poor advice. It is a proven fact that many, possibly all people on earth are not getting the RDA's, from the recognized minerals in their daily diets. Again, this is because most of our raw foods contain a minimal number of minerals and even

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become more superficial when they are over processed and over cooked. A lack of minerals can place stressful situations upon our resistance to disease. Supplementation, therefore, not only seems advisable, it is advisable! Obviously, everyone should supplement their daily diet with as many minerals as they can possibly obtain.

Another recent and well-published test result on food was reported by Dr. David Thomas. Dr. Thomas of the United Kingdom is a healthcare practitioner and independent researcher. He made a comparison of British Government tables, which the Government actually published in 1940 and again in 2002. His findings were published by the Food Commission in the FOOD NAVIGATOR, which can be reviewed by logging on to www.foodnavigator.com. This report is on food in the UK but believe me, the United States is just as deficient in minerals if not more so! The report stated "The plummeting mineral content of milk, meat and vegetables over the last 60 years will have grave consequences for the future health of the UK, according to a shocking food analysis". The report said the iron content in 15 different varieties of meat had decreased on average by 47 percent, with some meat products showing a fall as high as 80 percent. Copper and magnesium, essential for enzyme functioning, also showed substantial losses. Magnesium levels have typically fallen by 60 percent. Dairy products have experienced a 90 percent drop in copper while the calcium loss in high value Parmesan Cheese was an extraordinary 70 percent. Dr. Thomas says, "We've lost the plot. Until people wake up to the nutritional situation, things will only get worse"! He goes on to say "We're begin-

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ning to see an increase in what was once called adult onset diabetes in kids, and an increase in asthma and hyperactivity. All these have nutritional links. When I see chronic illnesses such as these, I always think it is amazing what a difference changing diets can do but why shouldn't it be like this in the first place?" Frankly, it's like this because we either weren't aware or didn't care to do anything about this years ago.

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Chapter 7

THE DEPLETION CONTINUES WORLDWIDE

These mineral losses are causing and will continue to cause havoc with the health of all people on earth. If we don't find some way to correct this situation, we will need twice as many hospitals in the next fifty years as we have at this time. Can you imagine the cost to a country's Government for health care one hundred years from now? The population will continue to grow, the minerals will continue to become more depleted and people will continue to get sicker and have more ailments due to a poorer food chain. All of us, the average people of the world, should prompt our Government officials to take notice of the mineral deficiencies that exist. This information can no longer be withheld. It must be addressed and steps must be taken and guidelines must be set out to make the public aware of the problem and how to help slow the mineral depletion process. This is not something that suddenly occurred! It was already being recognized 100 years ago. Dr. Alexis Carrel, winner of the Nobel Prize in Medicine in 1912 said, "Soil is the basis of all human life and our only hope for a healthy world... All of life will be either healthy or unhealthy according to the fertility of the soil. Minerals in the soil control the metabolism of cells in plants, animals and man... Diseases are created chiefly by destroying the

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harmony reigning among mineral substances present in infinitesimal amounts in air, water and food, but most importantly in soil".

The U. S. Department of Agriculture published this quote in 1977. "In the future, we will not be able to rely anymore on our premise that the consumptions of a varied balanced diet will provide all the essential trace minerals because such a diet will be very difficult to obtain for millions of people". I wonder why we have not heard much about this before. I also wonder why we have not heard much about the topic of soil mineral depletion that was agreed upon during the THE EARTH SUMMIT held in Rio de Janeiro in 1992. The consensus from analytical tests concluded the soil mineral content during the last 100 years declined in specific countries as follows and was published as the;

WORLD'S MOST IMPOVERISHED SOIL

U. S. and Canada	85%	Reduction
South America	76%	Reduction
All of Asia	76%	Reduction
Europe	72%	Reduction
Australia	55%	Reduction

The summit concluded the main causes of mineral depletion in soil were, 1. Water cycle and soil erosion, 2. Aggressive farming, 3. Fertilizers and Pesticides.

From my twenty-five year experience with a complete spectrum of minerals, I am convinced that proper supple-

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mentation will help prevent various forms of some degenerative disease, even after it is detected. Minerals are especially important in this area to make vitamins more beneficial.

As you've already heard, plants can make vitamins but they cannot make minerals. We have to get our minerals from sources other than plants but we know there are not many available due to the mineral depletion of our soil. Even if there were still 75 minerals in the soil and we were able to get them, they would still be metallic minerals and according to the experts, our digestive systems only assimilate about 8 percent of the metallic minerals we consume. So, if we can't get many minerals from modern day plants or today's food, where do we get them? I believe the answer is Senonian Compost!

What is Senonian Compost? Senonian Compost can best be described as a blend of numerous plants that grew during the Senonian period of seventy to eighty million years ago. This prehistoric vegetative matter congregated in a large area of central Utah in the United States. This compost is made up from plants that grew at a time when the earth still had 80 of more minerals available for the plants to draw upon. It has been encapsulated under a thick layer of sandstone, protecting it from the elements that would have leached out many of the minerals had it been closer to the surface. Senonian Compost is mined much like coal under the watchful eyes of The Federal Bureau of Land Management. After mining, it is placed in large food grade vats and covered with pure water to leach out no less than approximately 75 pure plant derived minerals. This vast array of minerals is the most complete full spectrum of

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plant minerals available today. This comprehensive blend of plant minerals provides incredible nutritional benefit when used in food supplements or in formulations of processed foods. These minerals also blend very well with animal feeds to enhance nutritional value beyond anything imaginable! They contribute significantly to plant growth and increased nutritional value when used in minute amounts as fertilizer or foliate.



*Pictured are four
of the sixteen
3000 gallon food
grade leach tanks
located in
the Utah Facility*

I have studied the effects of Senonian minerals for more than twenty years. The results were amazing! I've had personal experiences that would nearly make one believe in miracles. We have heard of similar experiences through thousands of phone calls and letters from Senonian Mineral customers who proclaim unbelievable cures, alleviations and astonishing benefits from the use of this full spectrum of plant minerals. However, we are not allowed to publish this information. I am not allowed to tell you the truth about the benefits of these minerals. By law, it must be suppressed or we could be accused of practicing medicine without a license. Isn't this ridiculous? You could have the best health improvement product on earth but you aren't allowed to publish its merits if you're not a member of the drug society. Frankly, I

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believe the suppression of information that might prove useful is contrary to the maturity and health of any free society.

Even though we are not allowed to tell people the truth, our trial and error tests and observations of the reactions and testimonials from thousands of people have convinced us that nothing is more beneficial than the pure Senonian plant derived minerals, especially because its composition has a low pH and lots of sulfur. The Senonian Minerals are very acidic, which helps raise the acid level in the digestive area, which in turn promotes better food assimilation. As mentioned previously, a high acid level inhibits anaerobic bacteria and viral replication. In my opinion, the main reason the Senonian Minerals provide such tremendous benefit is because they contain an unusually high amount of sulfur. Sulfur also aids in the utilization of calcium. As an example, many middle-aged women have reported some interesting facts. They were severely calcium deficient when they began to consume these minerals. After using the liquid Senonian Minerals at two ounces per day for more than a year, they were no longer calcium deficient. This occurred without the aid of additional calcium intake. Maybe this occurred because of the high amount of sulfur. It is my opinion that we may not require nearly as much calcium as assumed if we supplemented our diets with a complete spectrum of minerals that come from plants. I believe this to also be true with respect to the RDA of other minerals. Also, we may not need nearly as much of the other minerals as previously assumed if we were using a complete spectrum of the 75 pure Senonian plant derived minerals.

Now that we have reviewed and gained a little knowledge about mineral depletion, let's think about just how

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important minerals may be for long-term survival. We may begin by asking this question. Just how important are minerals for good health? And, do minerals prevent disease? Let me recite a now famous statement from Dr. Linus Pauling, two-time Nobel Laureate. He said, in his opinion, **"One could trace every sickness, every disease and every ailment to a mineral deficiency!"** If his statement is true, and I believe it is, "The Root of All Disease" is a lack of minerals! I have been monitoring and studying thousands of mineral deficient people for twenty-five years. In my opinion, heart disease is a direct result of a mineral deficiency! Did you know we lose more people in the United States every year from heart disease than we have lost in all of our wars combined since the signing of the Declaration of Independence? This is staggering and the number of deaths from heart disease is increasing each year!

The heart surgery industry in America is booming. We have the statistics from several years ago and as you will see, they are even more staggering now. According to the statistics of the American Heart Association, in 1995, 1,460,000 angiograms (the diagnostic procedure that starts the ball rolling) were performed at an average cost of \$10,880 dollars per procedure. This resulted in 573,000 bypass surgeries at \$44,820 dollars per surgery and 419,000 angioplasties (the balloon procedure for opening up arteries) at \$20,370 dollars each. The total bill for these procedures was over \$50 billion dollars that year. Now, if you have trouble grasping the magnitude of \$50 billion dollars a year, try \$137 million dollars per day or \$5,700,000 per hour or \$95,000 every minute. This is a staggering figure and I'm told these costs have risen by 40% since 1995.

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According to Julian Whitaker, a medical doctor, other than their costs, the only thing definitely known about these procedures is that they do kill people. Roughly one in 25 patients having bypass, and about one in 65 patients undergoing angioplasty die from the procedure. I am not a doctor, but from my experience of watching and studying thousands of people, I am convinced heart disease would be dramatically reduced if everyone consumed a full spectrum of plant derived minerals every day.

Nearly everybody, especially so called nutritional experts, misunderstand or don't appear to know anything about plant derived minerals. They group plant derived minerals with metallic minerals that come from oyster shell, calcium carbonate, limestone, soil and clay and sea salts. Supposedly, too much of some of these metallic elements have toxic effects on the body. Again, according to Dr. Gary Price Todd, the human body is not designed to absorb or assimilate and use metallic minerals. Forty years ago, the health food industry recognized the metallic mineral absorption problem, of no more than 8 percent. Chelated minerals were developed in the laboratory. This process involved wrapping amino acids or protein around metallic minerals to help the body metabolize them. This did help the problem because these added dissolvers did increase the assimilation to about 40%. However, chelated or not, the fact remains, they are still metallic minerals.

Don't be misled with this recently formed "Ionic" Mineral jargon. They just came up with a new descriptive name for an old metallic element solution that really doesn't contain many minerals but it does contain a lot of sodium. The definition of

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an Ion is "an electrified atom or group of atoms." This could describe anything on earth.

Chapter 8

THE TOXIC MINERALS BELIEF

We all know about toxic metals (toxic metallic minerals) and most people have been led to believe the so called toxic minerals are bad regardless of their source. This is not necessarily true. Let's take aluminum as an example. Aluminum, as found in the earth is a metallic mineral. It has always bothered me to learn that so many of our supposed leaders, intellectuals, doctors and nutritionists know so little about this element. It has been criticized beyond belief. Granted, metallic aluminum, like that which can be dissolved or leached from aluminum pans or utensils may be extremely harmful and I truly believe it is. But, what about aluminum from food? You're probably asking yourself, "Did he say foods contain aluminum"? Don't be surprised because the answer is YES!

Foods also contain other supposedly toxic minerals. Questions have been raised about the presence of aluminum, cadmium, lead and mercury and other possibly toxic minerals in the Senonian plant derived liquid minerals and a later product called Sizzling Minerals. These questions are certainly reasonable and there are theories on both sides of the issue. However, experimental trials with measurements of toxic mineral levels over time are a more accurate way of answering these questions than theories, however reasonable they may seem.

Gary Price Todd, M. D., an ophthalmologist who prac-

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ticed in Waynesville, North Carolina conducted such a trial. Dr. Todd worked with the Senonian Minerals for more than five years. He asked his study group to take three ounces of the Senonian liquid minerals each day, a potent dose, along with three grams of Vitamin C and a multiple vitamin/mineral supplement. He chose to "follow" aluminum, cadmium, lead and mercury levels in hair specimens over time. He believed hair level tests of potentially toxic minerals are more accurate than blood tests, as our bodies "clear" these minerals from the bloodstream relatively fast.

Dr. Todd reported that at three months time, levels of aluminum, lead and cadmium had all risen slightly. Mercury was not significantly changed. At four to six months time, levels of aluminum, lead, cadmium and mercury had all decreased dramatically. In a different group of individuals, measured before treatment and at eight and sixteen months, levels of aluminum, cadmium and lead all declined. Mercury in this group was not at detectable levels either before or after treatment. Dr. Todd points out that successful clearing of potentially toxic metallic minerals (as well as other potentially toxic substances) from our bodies, first requires "mobilization" of these minerals from the "storage" sites such as bones, teeth, etc. If this "mobilization" is successful, the potentially toxic minerals are then cleared from the body and measured levels decline over time. This occurred with every individual that used the Senonian Minerals in Dr. Todd's study. Dr. Todd actually wrote a paper entitled "Toxic Mineral Elimination by Mineral Substitution". He stressed the need for Senonian Minerals to detoxify the body in order to remove the toxic metallic minerals.

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I want to be more specific about aluminum. All aluminum that comes from food is pre-assimilated by the plant, and it is naturally tied to hydrogen in the form of sulfate. Senonian plant derived minerals are naturally rich in sulfate. Naturally occurring aluminum sulfate minerals are called alums, which are used in styptics and antiseptics. We all know aluminum hydroxide is used extensively as food additives throughout the world. Therefore, if aluminum is harmful, why have you lived so long, and why is it used in food processing or as ingredients in deodorizers, antacids, and face makeup and nearly without exception in many municipal water systems throughout the world? Alum sulfate increases stomach acidity and improves digestion and the absorption of nutrients, stimulates gastric and pancreatic secretion and has a mild diuretic effect. Incidentally, the World Health Organization estimates that the average adult dietary aluminum intake ranges between 10 and 15 milligrams (mg) daily. See if you agree after reading the next several pages.

Aluminum is one of the most abundant minerals on earth, second only to silica. It is in virtually everything we touch, most of the air we breathe, most water we drink and in most food we eat. I am particularly alarmed to learn Government Officials in some countries either are not aware of or want to suppress the fact that aluminum is also one of, if not the most abundant minerals in many of our foods! One Scandinavian country used to say it was unlawful to consume more than 2 mg of aluminum per day, regardless of the source! We spoke to several well known laboratory and food chemists about this country's legal limits. Needless to say, they all had a belly lurching laugh over this. Can you imagine an entire country, in this advanced age, being so uninformed about food?

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Apparently, the U. S. Government is aware of aluminum in food because the U.S. does not have an established limit. If we did, we would have a hard time staying alive. This makes me wonder what foods people in this Scandinavian country eat.

We were able to obtain copies of the results of lab tests for aluminum in certain plant foods. The results came from the A & L Laboratory Agronomy Handbook used by many agronomists worldwide. The page headings state "Plant Analysis Guide Nutrient Sufficiency Ranges". I understand the tests are made on plant petals, vines or even the fruit or nut, depending on the type of plant bearing the food. The amounts are listed in parts per billion (PPB). Just so you know, PPB and MCG/L (micrograms per liter) are considered one and the same. The test results have a low amount and a high amount that were obtained from different tests on the same food or plant species. I am listing the averages below.

<u>Plant Or Food</u>	<u>Aluminum In PPB</u>	<u>Plant Or Food</u>	<u>Aluminum In PPB</u>
Bananas	97,000	Peas	45,000
Coffee	97,000	Peppers	75,000
Pineapple	100,000	Potatoes	100,000
Oil Palm	98,000	Root Crops	140,000
Asparagus	90,000	Tomatoes	90,000
Beans	165,000	Corn (at tasseling)	140,000
Brussels Sprouts	65,000	Mint	140,000
Celery	190,000	Peanuts	75,000
Cucumbers	90,000	Small Grains	135,000
Head Crops (lettuce)	90,000	Soybeans	75,000
Leaf Crops	50,000	Wheat (high yield)	140,000
Melons	65,000		

I suppose you are surprised as I was the first time this was brought to my attention. I was even more astounded recently when we were visited by one of our Japanese distributors and their Ph.D. Food Chemist. He gave us a book

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published by the Japanese FDA (JFDA), listing the minerals found in every conceivable food. (This book is available. Contact your local bookstore and ask for ISBN #1 56959 904-1). The categories in this book include many species of fish, fowl, all edible animal meats, nuts and berries, fruits, vegetables, and all types of beverages. All total, there are more than two thousand listings and every one contained aluminum. I was not surprised to see that a total of only twenty-eight combined minerals were found, in these two thousand edible foods. This is a good example of the mineral deficiencies throughout the world! Had these tests been done a thousand years ago, they may have found at least 75 minerals in the test subjects. Many of these foods also contain arsenic and lead. At the top of the following page, you will see a few of the listings that were not included on the previous page. The amounts are relative to micrograms per only three and one half ounces (3 1/2 oz.) of each food item.

It is interesting to see that a glass of skimmed milk contains as much aluminum as the recommended adult weekly dose of the mineral liquid or effervescent mineral wafers made from the Senonian Minerals. Please review tea again. Today, everyone is touting the benefits of tea. Note that three ounces of Banacha Green tea contains more aluminum than five gallons of milk. The most interesting fact is that all of the consumables listed contain minerals that are negatively charged by Mother Nature. All metallic minerals, including those "washed in" minerals, like those from the Great Salt Lake, have a positive electrical charge from Mother Nature. This zeta potential is easily verifiable and indisputable.

The way I calculate the amounts listed on the JFDA Report, people allowed no more than 2 mg of aluminum per

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JFDA Aluminum Amounts in (3 1/2 oz) Foods

<u>Plant</u> <u>Or Food</u>	<u>Aluminum</u> <u>In PPB</u>	<u>Plant</u> <u>Or Food</u>	<u>Aluminum</u> <u>In PPB</u>
Round Herring Sardines	34,000	Bologna	1,900
Scallops	6,900	Pork Products	2,400
Shrimps	1,300	Liver Paste	1,100
Condensed Skim Milk	670	Green Asparagus	610
Skim Milk Powder	1,200	Turnip	1,200
Cheddar Cheese	2,000	Pumpkin and Squash	1,500
Sugukina	3,600	Royal Fern	19,000
Radish	1,500	Eggplant	13,000
Apricots	1,000	Avocados	390
Figs	1,600	Sencha Tea	100,000
Chili Powder	6,000	Banacha Tea	332,000
Curry	23,000	Oolong Tea	247,000
Cocoa	17,000	Allspice powder	7,300
Clove Powder	14,000	Black Pepper	8,100
Horseradish powder	3,900	Cinnamon Powder	7,900
Sage Powder	64,000	Nutmeg	113,000

day could not eat more than one thin slice (cut off the end) of a banana each day. People allowed 4 mg could eat no more than a small potato each day. And what about salads? Review the list again and make your own decision. Apparently, plant derived aluminum is not harmful, don't you think?

I had the opportunity to speak to many people while participating in a National Health Foods show in Anaheim, California in early 1995. I directed a simple question to more than forty people on an individual basis. Several had Ph.D.'s in food chemistry, at least eight of them were certified nutritionists, two were medical doctors, four were chiropractors and the balance was health food store owners. My question to each was "would you eat food if you knew it contained aluminum, arsenic, lead or nickel?" Without hesitation each person replied "absolutely not!" I was shocked to learn that so many suppos-

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edly well schooled nutritional people were unaware that these minerals can be found in nearly all the foods we eat. To prove my point, we contracted a well-known reputable laboratory to perform a spectrographic test for total mineral content on several well-known foods. The lab purchased these food items from a Midwest supermarket. The test results are below.

Nearly all plants contain aluminum, and if your mineral supplement contains little or no aluminum, it is not plant

<p>Broccoli Aluminum Boron Calcium Chlorine Copper Iron Magnesium Manganese Nickel Phosphorus Potassium Silicon Sodium Strontium Sulfur Titanium Zinc</p>	<p>Grapes Aluminum Barium Boron Calcium Chlorine Chromium Copper Iron Lithium Magnesium Manganese Nickel Phosphorus Potassium Rubidium Silicon Sodium Strontium Sulfur Titanium Zinc</p>	<p>Almonds Aluminum Barium Boron Calcium Chlorine Chromium Copper Flourine Iron Magnesium Manganese Nickel Phosphorus Potassium Rubidium Silicon Strontium Sulfur Titanium Zinc</p>
<p>Apples Aluminum Arsenic Barium Boron Bromine Calcium Chlorine Copper Fluorine Iron Lead Magnesium Manganese Nickel Phosphorus Silicon Sodium Sulfur Titanium Vanadium Zinc</p>	<p>Carrots Aluminum Barium Boron Bromine Calcium Chlorine Copper Fluorine Iron Lithium Magnesium Manganese Nickel Potassium Phosphorus Rubidium Silicon Sodium Strontium Sulfur Titanium Zinc</p>	<p>Tomatoes Arsenic barium Boron Bromine Calcium Chlorine Copper Iron Lithium Magnesium Manganese Nickel Phosphorus Potassium Selenium Silicon Strontium Sulfur Titanium Zinc</p>

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derived. If it is not plant derived, it is also not negatively charged. Therefore, it probably is not very well assimilated or absorbed. According to food chemistry, plant derived minerals are 100% absorbable. If this were true, comparing any metallic mineral to a Senonian plant derived mineral would be like comparing sawdust to oatmeal. Pure Senonian plant derived minerals are the result of plants converting hydrophobic metallic minerals to hydrophilic (water soluble) minerals through the root system, as they grow, by a process known to science as assimilation through plant synthesis. By this process, the metallic mineral is assimilated or digested by the plant; therefore the human body can more easily assimilate it. This natural process basically side steps the normal digestive time of about 15 hours as required for the small amount of metallic minerals to be actually utilized.

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Chapter 9

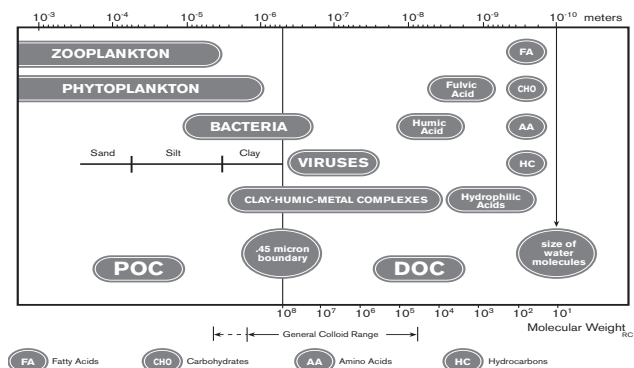
ELECTRICAL CHARGE,
SMALLNESS & SOLUBILITY IS THE KEY

Plant minerals like those obtained from tomatoes, broccoli, potatoes, oranges or any other food grown from the earth are different than metallic minerals. Their size and molecular weight is much smaller than metallic minerals and in most cases, the plant minerals are attached to an additional molecule even though they possess the same name. I predict that the scientific community will change the name of plant minerals in the future. I believe this will occur after they eventually realize plant minerals are composed differently and function differently than metal elements.

The Senonian Minerals were particle sized by Dr. Ranville of the Colorado School of Mines. Please review Dr. Ranville's logarithm scale at the top of the next page.

Basically, the scale reveals that clay, silt and hydrophobic metallic minerals, on average, are considerably larger than hydrophilic acids or hydrophilic plant minerals. The figures at the top from left to right are measurements in microns. As an example, 10^4 is 10 times smaller than 10^3 , and 10^9 is 10 times smaller than 10^8 , etc. The exponents of 10 clearly indicate that bacteria, viruses, clay and humic metal complexes are considerably larger than hydrophilic complexes such as the Senonian hydrophilic plant derived minerals. These pure plant minerals can be pumped through a pharmaceutical grade, .01 micron

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(absolute) filter. Most metallic minerals will not pass through this small membrane. Only the water passes through. As indicated, a water molecule is only slightly smaller than hydrophilic complexes. The small size and water solubility is one of the reasons so many nutritionists believe the Senonian plant minerals are much easier to assimilate and absorb than metallic minerals. The small size of a plant mineral gives it much more surface area. Therefore, the hydrochloric acid in the stomach comes in contact with considerably more surface area allowing for much more and possibly 100% assimilation. The bottom portion of the scale relates to the weight of the particle, which is measured in atomic mass units or AMU's or Daltons. A Dalton is a measurement of molecules and atoms. When reviewing the scale, it is plain to see that the molecular weight of a hydrophilic mineral is considerably less than metallic complexes. In short, this clearly indicates there is as much difference in, generally known, "colloidal minerals" or "metallic minerals" and "Senonian produced plant minerals" as day and night. When you study the organic carbon continuum (logarithm scale) it is easy to understand why

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water-soluble Senonian plant minerals are thought to be much more effective than metallic minerals.

In addition to being water-soluble, plant derived mineral extracts that have been predigested by the plant are naturally acidic. This alone makes important elements like calcium and iron more easily absorbable. As revealed in the preceding logarithm scale, a plant mineral is as much as several thousand, and with some, at least a hundred thousand, and others as much as a million times smaller than the smallest metallic mineral.

The average plant derived mineral can be measured in nanometers and the smallest in picometers. On average, they are less than 0.00001 micron in size that could conceivably be 1/10,000th the size of a red blood cell. Their small size gives them an enormous surface area. It has been calculated that the plant derived minerals in one ounce of the Senonian Liquid Minerals or two of the Senonian Sizzling Minerals wafers, would have a total surface area of approximately 55 acres of land. That's billions of tiny electrically charged minerals. The surface area calculation is hard for most people to understand. Let me explain. Let's assume you measure the outer surface of a basketball. Deflate the basketball and fill it with marbles, then measure the surface area of all the marbles. You have increased the surface area within the basketball by 1 million times. Remove the marbles and fill the basketball with buckshot or BB's. You have again increased the surface area by 10 million times. Now, remove the buckshot and fill the void with sugar granules. You have again increased the total surface area by twenty-five million times. Remove the sugar granules and fill the basketball with the ultra microscopic mineral powder that comes from dehydrated Senonian liquid minerals and you have increased the surface

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area by approximately another 50 million times. This explains the calculated 55 acres due to the smallness of plant derived minerals. And tests have proven that the Senonian plant derived minerals (like the minerals from a tomato or apple) have a natural negative zeta potential or natural negative electrical charge.

Experts in the Medical and Nutritional fields have told me they believe the Senonian Plant Minerals are so small they go directly to the cellular level. Most importantly, they say, they are immediately effective, like minerals from a tomato, because the body doesn't have to digest them. They have been pre-digested by the plant.

All plants, fruits and vegetables contain converted or assimilated metallic minerals, which become negatively charged through the plant's synthesizing process. In order for minerals to be quickly and properly absorbed through the intestinal membrane, they must be negatively charged. When you eat plants or a plant's fruit, you are eating plant derived minerals in an already combined and electrochemically neutralized form. These negatively charged, water-soluble minerals from plants are non-toxic in reasonable dosage. For example, iodine in plant derived form is one of the elements for good health. And this is really interesting; if you drank even 2 grains of free iodine, it would kill you. But in its plant derived form, iodine is not only harmless, it is beneficial. The same is true for plant derived arsenic, lead, aluminum and other minerals considered toxic in their metallic form. A full spectrum of plant minerals will greatly enhance your chances of good health if you stretch a lot, exercise often and if you sensibly select the foods you eat.

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Chapter 10

A SAFE & SANE DIET

We would all prefer to be able to get our nutrition from our food chain without the need for supplementation. Unfortunately, this is not possible due to the depleted mineral status of our foods and also due to losses that occur during processing and storage. If you want optimal health, supplementing is necessary and I fully recommend you begin with Senonian Minerals because vitamins and other nutrients are more effective after you have the minerals your body needs. I suggest the following: Eliminate to whatever degree possible, **White Sugar and White Flour** products as well as products to which salt has been added. Also eliminate fried foods as much as possible. Your diet should include two or more fruits per day. Be sure to wash the fruit thoroughly to remove the insecticide and pesticide residues. Fruit and vegetables that must be cooked should be cooked minimally by steaming or cooking in a microwave oven. I am aware of the controversy over microwaves. However, I still prefer the microwave if glass bowls or dishes are used instead of plastic.

Fat should be trimmed from meats before cooking. Since the fat in poultry is in the skin, remove the skin before consuming. Hamburger and other ground meat should be purchased as fresh as possible, used as soon as practical and should be purchased in the lowest fat form available.

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Eggs provide good nutrition and should not be neglected. Forget the bugaboo that they raise your blood cholesterol. Eggs cooked without breaking the yolk sack do not materially raise cholesterol levels. Scrambled eggs or eggs cooked as an omelet should be avoided because the scrambling supposedly creates free radicals.

Vegetable Oils are essential. The seed vegetables should supply this. However, consuming one tablespoon (1/2 ounce) of fresh safflower oil per day is recommended to assure that you are getting essential fatty acids. I believe Safflower is the best but there are other alternatives available.

Sea Salt is preferred over regular table salt. Herbal mixtures are available which enhance flavor. Less sea salt than regular salt is needed to enhance flavor.

Avoid margarine and all Hydrogenated fats. These fats interfere with the body synthesis of essential prostaglandins and also alter the cells metabolism. Persons who consume these fats have a remarkably increased risk of cancer and perhaps also an increased risk of stroke or heart attack according to Dr. Gary Price Todd. Butter is neutral in this regard.

Fruits and Vegetables are necessary and you should consume two generous servings per day of dark yellow or dark green vegetables or fruit. The especially good ones are spinach, broccoli, kale, sweet potatoes, pumpkin, squash, peaches, apricots, cantaloupe and watermelon. Each of these is an excellent source of beta-carotene, which has been proven to help in the prevention of cancer. Include at least one serving of the cabbage fami-

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ly each day, either raw or lightly cooked. These include cabbage, broccoli, brussels sprouts, turnips, rutabagas and cauliflower. Also include onions and garlic as much as possible.

Seeds and Grains that reproduce themselves should be eaten as much as possible. These include beans, corn, peas, peanuts, various other nuts, sunflower seeds, wheat, barley, pumpkin seed and so forth. Many seeds, such as mung beans and alfalfa, taste better sprouted and used in a salad. When you purchase your breakfast cereal, try to get those that contain several grains. Beans are best cooked as a mixture of bean types since each one has a slightly different mixture of amino acids, so a combination of beans provides a more complete source of protein. If you garden, grow soybeans and pick them when full and still green. Drop the pods in boiling water for a minute before shelling. Soybeans freeze well and taste like a cross between boiled peanuts and lima beans.

Meat should be included in your diet at least once a day. I have no objection to red meat, but I do recommend that the fat be trimmed, even before cooking. Hamburger should be purchased fresh and cooked as soon as possible. Try not to freeze hamburger before cooking. Liver should be eaten at least once each week to help supply vitamin A. If you don't want to eat liver, take a cod liver oil tablet of liquid daily or a supplement supplying at least 10,000 IU of Vitamin A daily. Vegetarians will choose to avoid meat. However, they can still get the needed protein if they eat a variety of vegetables and nuts. Since poultry is an excellent source of protein it should be eaten often. Poultry has its fat in the skin, so always remove as much skin as possible. Baked chicken is

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much better for you than fried chicken. Fish, especially, should be eaten at least two or three times per week. It is best baked or broiled rather than fried to reduce fat. Fish grill very well just like hamburgers. Certain fish provide an essential fatty acid that appears to reduce the risk of heart disease. These include tuna, salmon, trout, sardines, herring, cod, haddock and mackerel.

Dairy Products should be served one or two times per day. I will not endorse homogenized milk since there is evidence that the small fat particles in homogenized milk may pass through the intestine into the blood stream without digestion, possibly causing allergic reactions, according to Dr. Gary Price Todd. Ideal dairy products include yogurt, cottage cheese and regular hard cheese. The hard cheese has less fat and more protein.

Water is often neglected as a nutrient. Ideally, your water should be either pure spring water or well water from aquifers that have not been contaminated by fertilizers, pesticides, insecticides or industrial wastes. I know these are hard to find anymore. I don't recommend distilled water for extended periods. Distilled water is very active and will leach minerals from your bones because it is searching for minerals. Good water is a catch 22 today. I have tested several national brands of bottled water and proved they were contaminated when they were purchased from the store. Do the best you can and drink at least eight glasses of water each day. Water is necessary along with minerals to detoxify and provide the catalyst for our blood. I highly recommend putting one Senonian Sizzling Minerals wafer in 16 ounces of water every day. This will provide you with 600 milligrams of 75 pure plant derived minerals.

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Chapter 11

WHAT KIND OF MINERALS SHOULD WE CONSUME?

I recommend plant derived minerals that come from Senonian Compost! They are the purest and most natural food supplement that God put on earth. According to science, the surface of the earth has changed significantly since its inception. One of these changes apparently occurred approximately 72 million years ago in an area of the United States that is now known as Emery County, Utah. Supposedly, a glacier or other causes of earth movement buried a large quantity of vegetative matter that may have been a dense growth or a washed in bog of numerous plants. Some Scientists believe this vegetate was formed when earth's fertile, mineral rich soil produced lush green plants and wholesome, succulent, wild fruit and vegetables. This was the era when the soils near the earth's surface still contained at least 84 minerals. The plants of that time must have been extremely nutritious. Maybe this explains why the plant eating Brontosaurus reached a body weight of 70,000 pounds, yet had a mouth no larger than a horse. This is a large area encompassing 840 acres of Senonian Compost that averages about 30 feet thick, providing reserves of about 32 billion metric tons of Compost that is sufficient to produce at least two trillion gallons of liquid Senonian Minerals. This amount of liquid will produce enough plant mineral powder to produce approximately 304 trillion (304,000,000,000,000) Sizzling Minerals Wafers.

Customer: TRC Nutritional Laboratories, Inc.
 12310 East Skelly Drive
 Tulsa, Oklahoma 74128

Analyst: Kyle Schick, Laboratory Manager/Chemist

Analysis Requested: Total elemental composition of TRC Mineral Powder

Sample ID: TRC Mineral Powder Lot #6790
 Lab# 92988

Procedure: The TRC Mineral Powder sample was diluted as necessary in glass Class A volumetric flasks. The elements Chloride, Fluoride, and Bromine were analyzed via Ion Chromatography (IC). Cold Vapor Atomic Absorption (CVAAS) was used for analysis of Mercury. Graphite Furnace Atomic Absorption (GFAAS) was the method used to determine Arsenic, Selenium, Lead, and Antimony. Semi-quantitative analysis for all other elements was carried out using Inductively Coupled Plasma - Optical Emission Spectrometry (ICP-OES).

REPORTED ANALYSIS

ANALYTE	UNITS	TRC Mineral Powder Lot #6790	ANALYTE	UNITS	TRC Mineral Powder Lot #6790
Aluminum	ppm	15,850	Barium	ppm	<0.01
Asbestos	ppm	0.27	Biochromium	ppm	0.25
Asenic	ppm	0.190	Neodymium	ppm	8.73
Boron	ppm	0.220	Nickel	ppm	188
Beryllium	ppm	0.01	Niobium	ppm	0.36
Bismuth	ppm	1.87	Caesium	ppm	<0.015
Boron	ppm	11.5	Plutonium	ppm	0.025
Bromine	ppm	0.28	Phosphorus	ppm	91.0
Cadmium	ppm	1.89	Platinum	ppm	0.022
Calcium	ppm	17,700	Polonium	ppm	940
Carbon	ppm	27,000	Praseodymium	ppm	4.36
Cerium	ppm	0.76	Rhodium	ppm	0.090
Cobalt	ppm	0.29	Rubidium	ppm	1.023
Chloride	ppm	13.0	Samarium	ppm	20.7
Chromium	ppm	0.97	Selenium	ppm	0.94
Cobalt	ppm	31.8	Silver	ppm	6.69
Copper	ppm	12.7	Sodium	ppm	2.28
Cyprineum	ppm	4.81	Solmium	ppm	1.66
Erbium	ppm	0.26	Tellurium	ppm	14.89
Gallium	ppm	0.47	Tin	ppm	3.23
Uranide	ppm	20.8	Sodium	ppm	34.80
Gold	ppm	12.8	Sroutium	ppm	18.1
Calcium	ppm	13.5	Sulfur	ppm	82,650
Uranium	ppm	1.20	Tantalum	ppm	0.39
Cold	ppm	0.11	Tellurium	ppm	0.11
Indium	ppm	0.18	Terbium	ppm	2.00
Iron	ppm	1.29	Thallium	ppm	16.4
Iodine	ppm	1.45	Thorium	ppm	0.48
Lithium	ppm	11.3	Thulium	ppm	0.94
Lithium	ppm	<0.1	Tin	ppm	1.82
Iron	ppm	17,900	Vanadium	ppm	1.97
Lanthanum	ppm	1.26	Tungsten	ppm	0.266
Lead	ppm	0.099	Vanadium	ppm	0.204
Lithium	ppm	84.1	Ytterbium	ppm	4.18
Lanthanum	ppm	0.14	Zinc	ppm	26.9
Magnesium	ppm	93,200	Zinc	ppm	0.22
Manganese	ppm	880	Zirconium	ppm	1.88

< = no quantity of this analyte detected above the stated limit.
 * Note: Detection limit = 0.01

Kyle Schick, General Manager

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The plant derived minerals are sold to thousands of people in forty countries under the Trademarked name of Senonian Juice. This juice contains approximately 40,000 milligrams of 75 plant-derived minerals, per quart. Unfortunately, pure Senonian plant derived liquid minerals do not have a pleasant taste. This has been circumvented by dehydrating off the water thereby leaving only the pure plant mineral powder (solids) that was in the liquid. This powder contains the same 75 minerals that were in the liquid before dehydration. The powder is mixed with other natural ingredients and compressed into an effervescent wafer that dissolves like Alka-Seltzer when added to hot or cold water. On the preeceeding page is a certified test of Senonian Plant Minerals found in the Sizzling Minerals wafers.

Each one of these wafers contains 600 milligrams of the 75 minerals that are the same kind and category of minerals that come from food that we get from plants such as broccoli, spinach, cantaloupe, tomato and cucumber.

As I end this book, I suppose you might wonder why I have referred to Dr. Gary Price Todd throughout. I believe Dr. Todd to have been the foremost expert on minerals in general and Plant minerals in particular. Dr. Todd was a brilliant M. D. and certified ophthalmologist who wrote the book "Health, Nutrition and Disease" of which millions of copies were sold. He was on the same speaking circuit as Dr. Linus Pauling for several years, always talking about the importance of minerals. Unfortunately, he became incapacitated and met an untimely death after slipping on wet leaves and hitting his head on a large stone in the yard of his mountainous home in North Carolina. This was great loss to the nutri-

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tional movement and to the determined exposure of plant derived minerals.

Dr. Todd worked with, tested and experimented with the Senonian Minerals for five years. He was constantly amazed by the improvement he saw from his patients who used the minerals. He was a good Christian and he truly believed God had been saving the Senonian Compost and allowing discovery only when it was most needed. He knew more about minerals and their effect on body chemistry than any one person I ever met in the medical or nutritional field. He was feverishly adept at explaining what these minerals would do for humans and then proving it through many of his patients.

I was present on June 15, 1986, in Tulsa, Oklahoma when Dr. Todd spoke to 250 people during a health seminar. When referring to The Senonian liquid Minerals, he said "I don't believe any of you fully understand or know the magnitude or merit and usefulness of this product". He went on to say, "I am convinced that if each adult in Tulsa would begin taking two ounces of Senonian Juice each day, by the end of this year, half of the hospitals in this city would be closed!" This was one of the most powerful statements I have ever heard in my life. He finished his lecture by saying "The lack of minerals is **The Root of All Disease.**"