

CLIVE M. MCCAY

# A Nutrition Authority Discusses Mrs. E. G. White

Ellen G. White

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#### **About the Author**

Ellen G. White (1827-1915) is considered the most widely translated American author, her works having been published in more than 160 languages. She wrote more than 100,000 pages on a wide variety of spiritual and practical topics. Guided by the Holy Spirit, she exalted Jesus and pointed to the Scriptures as the basis of one's faith.

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## by Clive M. McCay, Ph.D.

# Professor of Nutrition. Cornell University

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#### Introduction

The fascination of history is the never-ending discovery of remarkable people to whom one is deeply indebted for advances in knowledge. One seldom comes to know about such people suddenly. Like living acquaintances, he first meets them at various places. Gradually he comes to know them more intimately and studies their lives and writings in detail. This is particularly true as regards the people one meets in studying the history of nutrition.

For the past quarter of a century I have taught a course for graduate students on the history of foods and nutrition. In this course are presented original materials, starting with the early Greek work by Athenaeus who lived in Rome at the end of the second century A.D. Down through the succeeding centuries notable names appear. For example, in the middle of the thirteenth century Petrus Hispanus published much about diet. Shortly after the discovery of America one of the greatest books about nutrition and old age was written by Luigi Cornaro (1464?-1566). Later centuries, on down to the twentieth, provide a remarkable array of books that present the theories, and sometimes the research, of the writers, on the broad subject of nutrition and foods. Such historical works must be scrutinized critically, for they contain much that is not true. In fact, most of these works are a curious mixture of truth and error.

Among the thousand historical acquaintances in my files, one of the most worth-while is Ellen G. White. As near as one can judge by the evidence of modern nutritional science, her extensive writings on the subject of nutrition, and health in general, are correct in their conclusions. This is doubly remarkable: Not only was most of her writing done at a time when a bewildering array of new health views—good and bad—were being promoted but the modern science of nutrition, which helps us to check on views and theories, had not yet been born. Even more singular, Mrs. White had no technical training in nutrition, or in any subdivision of science that

deals with health. In fact, because of her frail health from childhood she completed only a part of a grammar school education.

#### **Obtained E. G. White Books**

I do not know when I first heard of Mrs. White. While a college student I worked for a few weeks in a machine shop in Battle Creek, but I cannot recall her name from that period. From time to time I have had visits from a few Adventist physicians and have come to admire them for their sincerity in service and interest in nutrition. Gradually, through the years, and more particularly in recent times, I have acquired a number of Mrs. White's writings.

However, my knowledge of the wisdom of Mrs. White has only begun, and the following notes must be considered as very incomplete and inadequate.

In order to place her health teachings in the proper perspective, I must first set down briefly certain historical facts.

Until modern times men lived in rather restricted areas of the earth, because they could not travel far nor rapidly. Men in each area were adjusted to the foods available. A physician in England has written an interesting summary of this relation of man to available foods under the title "The Neglect of Natural Principles in Current Medical Practice" (*Journal of Applied Nutrition*, 1958, 11, 116).

All plants and animals that serve as food for man and other animals have long been known to be very complex mixtures, often combined into hundreds of semi-living compounds called enzymes. Some of the organic compounds can be made by the body of man. Many are made by plants, but are essential for the animal body. Without such compounds, vitamins, essential amino acids or fatty acids, the animal body sickens and dies.

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## Man's Diet in Earlier Ages

In earlier ages man did not destroy the complex nutrients of natural foodstuffs, because his supply was often marginal and he had to eat the whole product in the form in which it grew. Cookery was probably the first method evolved that tended to destroy part of the vitamins of food. However, early man was migratory, within limits, and often had little fuel available. Hence he cooked briefly as many Eastern people do today, because of limited fuel supplies. Early man learned to sprout certain seeds such as soy beans that are difficult to eat without long cookery. Sprouting conserved the natural food values and made short-time cookery possible.

Man first learned to destroy most of the value of natural foods when he discovered the distillation of alcohol, more than a thousand years ago, and when he learned to crystallize sugar, about two thousand years ago. Distillation and crystallization are human methods of removing most of the vitamins and other essentials of natural foods. When grain, such as corn, is fermented and then distilled, all of the protein, fats, vitamins, and minerals are left in the retort. Today these essentials are fed to animals, and man drinks the alcohol in the form of vodka or whisky. When sugar cane or sugar beets are grown they are rich in many essentials, like other foods, but crystallizing out the sugar leaves the essentials behind, just as much as does distillation.

#### **Modern Scientific Era**

Until modern times these processes had little importance in human nutrition, because man could not work on a large scale to produce thousands of tons of alcohol and sugar. He lacked the equipment for large scale processing. Furthermore, he had no means of assembling the ingredients for making sugar or alcohol on a vast scale, even if the natural foods could have been grown in large amounts. Two hundred years ago a bill to restrict the growth of London was debated in Parliament because of the difficulty of transporting sufficient food to the people by means of horses and carts. In past ages the amounts of alcohol and sugar that were produced were small enough to make these products luxuries.

About 150 years ago the sciences of chemistry, physics, and physiology started to advance rapidly. These sciences finally made it possible to produce and distribute the vast array of foods that flood the American markets today. At the same time they made it easy to produce and sell huge amounts of highly processed materials such as sugar and alcohol that appeal to the taste of man but may lead him downward in well-being. Today, increased means of communication such as the television and a growth in the knowledge of the psychology of selling make it possible to sell man ever-increasing amounts of these deteriorated products.

With the development of the natural sciences came a better understanding of human nutrition. The chemist gradually, in the course of the past 150 years, came to appreciate that natural foodstuffs were composed of numerous essentials such as minerals, amino acids, protein, and unsaturated fatty acids. However, this growth of scientific knowledge has not insured man against malnutrition and ill health, because such knowledge is very incomplete. Hence even today human nutrition must rest upon experience and the teaching of the past.

As the basic knowledge of nutrition advanced, men set up standards that purported to show what every person should consume if [3]

he desires to be healthy and well fed. The first of such standards was set up by a chemist named Prout, more than a century ago. The most recent of these was formulated by various health agencies—scientific and governmental—in different countries.

Even today, such standards are merely rough guides and are very incomplete because we know so little about human nutrition. Ingesting foods to provide all of the nutrients of these standards will not insure freedom from malnutrition today, any more than it would a hundred years ago.

In some respects such standards have had a very bad influence, because the teachers of nutrition make their pupils think that there can be no malnutrition in a nation whose people consume foods that provide the levels of vitamins or compounds suggested in these standards. Such teaching gives free rein to those who sell alcohol, soft drinks, sugar, and refined products to increase their business, because they can constantly assert that the people are fed adequately.

Nutritional scientists who worship at the shrine of so-called standards have been equally inconsistent from the beginning. A century ago the disease pellagra was common in America and some of the corn-eating areas of Europe. About this time the disease was eliminated from France by decreasing the amount of corn consumed and having the people eat more milk, eggs, and meat. The French chemist, Roussel, knew how to prevent pellagra as early as 1840, but more than seventy years were to pass before Americans made use of this knowledge. The nutritional standards of the pellagra era would have made man think he was adequately fed. The truth was the opposite.

Today the same condition exists, in principle, in America. The exponents of the standards assert that Americans are the best fed in the world. At the same time thousands of Americans are dying from the diseases of heart and arteries. There is growing and impressive evidence that these diseases are the reflection of bad diet, but they occur in those who abide by the so-called adequate nutritional standards, which fact forces us to admit that the whole science is still too primitive to provide wholly adequate guidance, even though much is known.

Health has been a matter of little individual concern to most people in our nation during its whole history. Among the 170 million people in America today there are probably not more than 10 million who are willing to devote substantial thought and self-discipline to maintain healthy bodies. Only after they have lost their health are most people willing to give any attention to the care of their bodies.

While the selection and preparation of food plays a key role in the maintenance of health, few people select food on the basis of its nutritive value. Most select it on the basis of its taste, the way the product is packaged, the pressure of advertising, or the ease of preparation. Hence, the large food processors orient their research programs toward packaging, taste, and convenience rather than toward nutritive value.

A sound nutrition program takes account of more than just the purchase of food. A healthy body, a satisfactory program of living, and a tranquil mind are all part of the essentials for sound nutrition, since the glands that insure digestion and assimilation of food cannot function when under the influence of a disturbed mind.

I have given this brief summary to provide the setting for my comments on the teachings of Ellen G. White, particularly in terms of the usefulness of her teaching today for the population of America. Whatever may be the reader's religion, he can gain much in the midst of this confused world in which we live, by a study of the writings of Mrs. White. Also, every thoughtful modern nutritionist must be impressed by the soundness of Mrs. White's teachings in spite of the fact that she began to write nearly a century ago.

Only a small fraction of people seem to grasp the importance of the concept of "balanced living" or the "wholeness" of life. This is expressed very well in the small compilation of writings by Mrs. White that are included in *From City to Country Living*. In this age, when problems of crime and juvenile delinquency are ever increasing, her writings have special interest to the sociologist. But to the modern nutritionist they also have special appeal because vast numbers of people have now moved to the edge of cities. They have facilities for producing much of their own vegetables and fruits with a minimum of poisonous spray residues. They have the space to grind their own wheat and make their own bread. They can even raise their own potatoes and squash. Mrs. White understood the value of such foods for better nutrition, and the value of the experiences of gardening as human recreation.

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When one reads such works by Mrs. White as *Ministry of Healing* or *Counsels on Diet and Foods* he is impressed by the correctness of her teachings in the light of modern nutritional science. One can only speculate how much better health the average American might enjoy, even though he knew almost nothing of modern science, if he but followed the teachings of Mrs. White.

To understand better the remarkable nature of her teachings, we should study them in the setting of the intellectual climate that prevailed during the earlier years of her life. This climate provided her with the problems that needed answers. Some of the problems press for solution even more today, because of the greater complexity of living and the very great increase in the world populations.

## **An Explanatory Note**

The background of Dr. Clive M. McCay's articles is an interesting one. Some years ago he came into possession of one of Mrs. White's books on the subject of health. He was impressed with what he read, particularly because the history of foods and nutrition was a subject to which he had given special study. The question came at once to his mind: How did this woman know so much about nutrition in a day when so many unfounded views were abroad? In time he acquired several more of her books and was increasingly impressed.

Then one evening last year he was invited to give a talk to a men's club of the local church he attended. He chose for his subject: "An Unusual Nineteenth Century Woman, Mrs. E. G. White." A copy of his talk reached our desk. On a trip last summer we stopped at Cornell University, in New York State, to visit Dr. McCay. We found him exactly where we might have expected to find him hidden away in an office that was surrounded by countless rats and mice whose contribution to nutritional science was matched by the oppressive odor they gave forth.

Dr. McCay is a classic exhibit of the truly scientific man. He was wholly undisturbed by the malodorous rodents. In fact, he was enthusiastic about them, pointing to this and that small creature that was eating, sleeping, waking, in a small metal cage for the great good of science. He then took us out to one of the nearby university farms. There a large barn with adjoining pens marked "Dr. McCay's laboratory" contained various animals that spend their days in munching different kinds of food to provide data on the effects of various diets. We might add that Cornell, one of America's leading universities, has done a great deal of significant research work in nutrition.

We stayed overnight at Dr. McCay's home, a very livable, rambling, remade farmhouse. We soon discovered to our delight that though he was a specialist in the field of nutrition, his active interest and reading extended over a remarkable range. More than once during the evening he returned to the question: "How do you explain the fact that Mrs. White, with very little formal education and no special training in nutrition, so accurately set forth nutrition principles that are only now scientifically established?" He ruled out as wholly unsatisfactory the answer sometimes casually given: "Mrs. White simply borrowed her ideas from others." He observed that such an answer simply raises another question: "How would Mrs. White know which ideas to borrow and which to reject out of the bewildering array of theories and health teachings current in the nineteenth century?"

Dr. McCay did not attempt to answer such questions. As a scientist he was interested in the phenomenon of her singular knowledge in advance of scientific discovery and experiment. Nor did we seek during the delightful but all too brief visit to enter into extended discussion of the theological doctrine of inspiration. We simply stated that Adventists accept Mrs. White's declaration that she was inspired of God, and let the matter stand.

[5] Dr. McCay was ready and happy to respond to our invitation to him to write something for *The Review and Herald*. The series from his pen, here reprinted, presents the essence of his address to the men's club, plus additional relevent material.

F. D. Nichol

## **Science Confirms Adventist Health Teachings**

by Clive M. McCay, Ph.D.

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Ellen G. White [born November 26, 1827; died July 16, 1915] was prominent for many years in the Seventh-day Adventist Church, and a writer whose counsel has guided the church on many matters, including that of healthful living. Her counsels on healthful living constitute the subject of the three articles by Dr. McCay, here reprinted from *The Review and Herald*.

Her first publication on healthful living appeared in the year 1864 as a rather lengthy chapter in the book *Spiritual Gifts*, vol. 4. In the years that followed she wrote scores of articles and several books on the subject. In 1865 she contributed one article to each of six pamphlets bearing the general title *Health*, *or How to Live*. These were later bound into a small book, and are now available in Selected Messages 2:409-479. In 1890 she contributed to the book *Christian Temperance and Bible Hygiene*, her portion of which was amplified and published as *The Ministry of Healing* in 1905. Posthumous compilations from her many articles and books have been published in book form, such as *Counsels on Health*, in 1923, *Medical Ministry*, in 1932, *Counsels on Diet and Foods*, in 1938.

To understand rightly the great need for dietary reform that existed at the time Mrs. White began to write, let us note the kind of foods available to the average family during the first part of her life—that is, from 1827 to the outbreak of the Civil War in 1861. During that period the typical farm family—and *most* families lived on a farm, from Maine to Indiana had some chickens, swine, sheep, and

a few cows. The housewife looked after the garden and the chickens while the husband labored in the field. The diet was reasonably satisfactory from the time rhubarb checked latent scurvy in April until most of the fresh foods had disappeared by Thanksgiving.

From Thanksgiving until Easter the diet grew progressively worse, with outbreaks of disease in February and March. Although the French scientist Appert patented methods for canning food in 1810, housewives had no containers for doing this until more than a half century later. Therefore, they had to depend upon drying apples, sweet corn, peas, and beans over the kitchen stove. Vinegar was available because the common fruit was apples. Salt was the other common preservative. Most meat was salted and smoked, although pork was often fried and stored in earthenware jars with the meat sealed and sterilized by pouring hot lard over it. Pickles could be preserved, and families of Germanic origin made sauerkraut.

Walnuts, hickory nuts, and in some areas, chestnuts, were available. Salted fish was commonplace. Eggs were plentiful in summer and scarce in winter because there was no good way to preserve them, except by storage in lime or sawdust.

Cellars preserved the potatoes and apples, although the potatoes were often nearly exhausted by spring.

The Indiana children took corn bread for their lunch at school until well after the middle of the century. At home they had much corn-meal mush and hominy. Highly refined white flour did not become common until after the middle of the century, because the roller mills that could take out the germ and the vitamins from wheat flour were invented only about the middle of the nineteenth century.

Butter could be stored in crocks, but was usually quite rancid.

Foods bought at the country stores usually consisted of salt fish or salt meat, some coffee or tea, some sugar, and a jug of thick molasses. Since the molasses came north from New Orleans, the supply was cut off during the sixties, and areas like Indiana developed a taste for the sour sorghum molasses.

Well before the birth of Mrs. White there were a few Americans protesting the bad diet, the smoking, and the drinking. Even from early antiquity there had been groups outside the Jewish traditions that subscribed to vegetarianism. Sylvester Graham, who was born in 1794, stirred the young American nation with his lectures advo-

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cating vegetarianism, the improvement of bread, the abolishment of alcoholic beverages, and more healthful living. He had much influence during the first half of the nineteenth century, but left no permanent group of followers. The vegetarian church was founded in Philadelphia in 1817, but it soon disbanded.

About 1840 the Shakers stopped the use of pork, strong drink, and tobacco. Many turned to vegetarianism. Their rules of health included the following:

- 1. Supply at least one kind of coarse-grain bread per meal. Avoid cathartics.
- 2. Have the sickly and weakly cease using animal foods, especially fats.
- 3. Keep the skin clean by regular bathing. But the Shakers reached their peak about 1850 and have now—thanks to their celibate views—almost perished.

In Mrs. White's *Life Sketches* one learns much about both the bad food served in most homes and the toll of diseases that resulted. It is no wonder that the relationships between food and diseased people were deeply impressed upon the Whites as they traveled in New England and the Middle West a hundred years ago. The diet was a monotonous one of fat, salted meats, bread, potatoes, and butter. No wonder that Elder White developed dyspepsia. Poverty, then common, served to make the fare even more meager.

When foods were available the Whites were plagued by poverty, yet they kept their determination to remain free from debts. In 1847 Mrs. White wrote, "I allowed myself and child one pint of milk each day. One morning before my husband went to his work, he left me nine cents to buy milk for three mornings. It was a study with me whether to buy the milk for myself and babe or get an apron for him. I gave up the milk, and purchased the cloth for an apron to cover the bare arms of my child."—Testimonies for the Church 1:83.

In 1852, when the Whites lived in Rochester, they had so little money that they could not afford potatoes and butter, but ate turnips and sauce.

At this time meals at hotels cost twenty-five cents. Hard liquor was five cents extra. Many men paid the extra, although it is doubtful

that the per capita consumption of alcoholic beverages was equal to that of today, since few women drank. Although cigarettes were not to become accepted until much later, there was much smoking and chewing of tobacco on the steamers and in the public waiting rooms.

The Whites in their travels must often have thought, in the words of Pascal, that "nothing more astonishes me than to see that men are not astonished at their own weakness."

#### **Specific Illustrations**

So much by way of background. I earlier stated that Mrs. White was a remarkable woman, particularly in terms of her health views. I wish, now, to be specific, in support of this statement, by comparing certain of her teachings with present-day well-established facts on nutrition. Though, for convenience, I shall quote, in part, from her book *The Ministry of Healing*, first published in 1905, most of what she there sets forth was presented in various of her writings of much earlier days.

Today there is a widespread movement to reduce the intake of fats, especially animal fats, in order to reduce the blood cholesterol and the dangers of atherosclerosis. Mrs. White wrote, "Nut foods are coming largely into use to take the place of flesh meats....When properly prepared, olives, like nuts, supply the place of butter and flesh meats. The oil, as eaten in the olive, is far preferable to animal oil or fat."—The Ministry of Healing, 298.

Near the end of Mrs. White's life in 1915 men began to appreciate that the milling of white flour removed most of the vitamins, part of the protein, and the important trace minerals such as iron. However, even nutritional authorities were very slow to inveigh against white bread. Today nutritionists know that these vital constituents are lost when the bran and germ are taken from the wheat. Mrs. White wrote, "For use in breadmaking, the superfine white flour is not the best. Its use is neither healthful nor economical. Fine-flour bread is lacking in nutritive elements to be found in bread made from the whole wheat."—The Ministry of Healing, 300.

In spite of her emphasis upon a given type of diet, Mrs. White appreciated that there were some people who could not tolerate foods that were well suited to the majority. Today it is well recognized that

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there are a few people with very sensitive intestines that suffer if the diet has much fiber. Mrs. White wrote, "Foods that are palatable and wholesome to one person may be distasteful, and even harmful, to another. Some cannot use milk, while others thrive on it....For some the coarser grain preparations are good food, while others cannot use them."—The Ministry of Healing, 320.

#### **Danger of Overeating**

Today it is well recognized that overeating and overweight produce much ill health. This is one of the few areas in which all professional nutritionists agree. Mrs. White wrote, "There should not be a great variety at any one meal, for this encourages overeating and causes indigestion."—The Ministry of Healing, 299. "Abstemiousness in diet is rewarded with mental and moral vigor." "At each meal take only two or three kinds of simple food, and eat no more than is required to satisfy hunger."—The Ministry of Healing, 308, 310.

Throughout the whole period spanned by Mrs. White's life it was customary to eat elaborate meals upon the weekly holy day. She wrote, "We should not provide for the Sabbath a more liberal supply or a greater variety of food than for other days. Instead of this the food should be more simple, and less should be eaten in order that the mind may be clear and vigorous to comprehend spiritual things."—The Ministry of Healing, 307. All thinking people will agree with this today, though many fail to practice it.

Today many people are restricting their use of salt in order to lower their blood pressure or in the hope of preventing high blood pressure. Attempts are made to keep the sodium intake low by using baked products made with yeast instead of baking powder. Mrs. White wrote, "Do not eat largely of salt." "The use of soda or baking powder in breadmaking is harmful and unnecessary."—The Ministry of Healing, 305, 300.

Today we teach home economics throughout our whole nation. Mrs. White wrote, "Cooking is no mean science, and it is one of the most essential in practical life. It is a science that all women should learn....To make food appetizing and at the same time simple and nourishing, requires skill."—The Ministry of Healing, 302, 303.

Meals served in many courses have almost passed from the American home, due probably to the disappearance of maids rather than a comprehension of Mrs. White's philosophy that all food should be put on the table at once, instead of in courses, so that one will know what is available and not overeat. (See The Ministry of Healing, 306).

## **Adventist Health Teachings Further Confirmed**

by Clive M. McCay, Ph.D.

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A problem of much concern in America today is that children insist upon watching television and eating snacks in the late evening. They then arise too late in the morning to eat breakfast. Before noon they are tempted to eat snacks and thus spoil their lunch. Mrs. White wrote:

"Irregularities in eating destroy the healthful tone of the digestive organs, to the detriment of health and cheerfulness. And when the children come to the table, they do not relish wholesome food; their appetites crave that which is hurtful for them."—The Ministry of Healing, 384.

Every thinking person today would agree with such wise statements of Mrs. White as,

"Pure air, sunlight, abstemiousness, rest, exercise, proper diet, the use of water, trust in divine power—these are the true remedies."—The Ministry of Healing, 127.

"Parents should early seek to interest their children in the study of physiology and should teach them its simpler principles... An education in the things that concern life and health is more important to them than a knowledge of many of the sciences taught in the schools."—The Ministry of Healing, 385, 386.

Or take these statements:

"The best food for the infant is the food that nature provides. Of this it should not be needlessly deprived."—The Ministry of Healing, 383.

"In the entertainment of guests there should be greater simplicity."—The Ministry of Healing, 322.

"Where wrong habits of diet have been indulged, there should be no delay in reform."—The Ministry of Healing, 308.

"Take active exercise every day, and see if you do not receive benefit."—The Ministry of Healing, 310.

"One of the surest hindrances to the recovery of the sick is the centering of attention upon themselves."—The Ministry of Healing, 256.

#### Mrs. White wrote:

"There is a large class who will reject any reform movement, however reasonable, if it lays a restriction upon the appetite....By this class, all who leave the beaten track of custom and advocate reform will be opposed, and accounted radical."—Counsels on Diet and Foods, 195.

Today this class is greatly strengthened in its opposition by the tremendous forces of advertising and the mass control of activities as described in such works as that of Vance Packard in *Hidden Persuaders*. Hence, improvement of the diet of people is probably far more difficult than it was in the time of Mrs. White.

## The Evils of Smoking

Today most of us tolerate the smoke blown in our faces as we travel by air, and we try to avoid getting holes burned in our clothing as we ride with cigarette smokers on hotel elevators. Today the press is filled with stories relating to smoking—because they force increases in the advertising budgets of the tobacco companies—in an attempt to offset the truthful disclosures. Recent impressive research seems to point to a definite relationship between smoking and diseases of the heart and blood vessels, to say nothing of its

relationship to lung cancer. Mrs. White wrote, "Tobacco is a slow, insidious, but most malignant poison....It is all the more dangerous because its effects are slow and at first hardly perceptible."—The Ministry of Healing, 327, 328.

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Mrs. White recognized the value of mixing a variety of grains. She wrote: "All wheat flour is not best for a continuous diet. A mixture of wheat, oatmeal, and rye would be more nutritious than the wheat with the nutrifying properties separated from it."—Counsels on Diet and Foods, 321. She recognized the truth from Ezekiel, "Take thou also unto thee wheat, and barley, and beans, and lentiles, and millet, and fitches, and put them in one vessel, and make thee bread thereof" (Ezekiel 4:9). These additions supplement the proteins of wheat bread, as well as increase such essentials as calcium.

In his book, *The Geography of Hunger*, Josue de Castro has stressed the fact that millions of people in the world are suffering from malnutrition because of poor dietary practices. In parts of the world this is owing to the few foods that are available. In the United States it is caused by the great surplus and poor selection owing to ignorance and the pressures of commercial industries that seek to force their products upon the public by subtle methods of advertising. The people of the world would serve themselves best if they produced part of their foods in their own gardens and if they followed a general plan of a wise leader such as Mrs. White.

Among nutritionists there is an acute awareness of the problem of feeding the ever-increasing population of the world. This has been well summarized recently in the *Journal of the New York Academy of Sciences* in an article by J. G. Harrar entitled "Food, Science and People." He notes the increase in the population of the earth from a half billion in the year 1700 to five times this number in 1950. It is hazardous to venture a guess as to what the future holds in regard to population growth, because many developments are in the offing that may reverse the whole trend. Large numbers of chemicals are finding their way into the human food supply in the form of additives, spray residues, drugs fed to poultry and meat animals, as well as radioactive fallout materials such as strontium90. Chemists are well on their way in developing compounds that will produce sterility when added to food supplies.

#### **Food Value Lost in Meat**

These and many unanticipated events may check or destroy the human population. However, if this population grows at the present rate basic changes are inevitable. When man feeds an animal such as a pig or a turkey upon the grains that he can eat, at least three fourths of the food value is lost. In other words four men can live upon plant foods directly, in comparison with the one man that can be fed if the food is first converted into meat and then consumed by man.

Mrs. White well stated that "The life that was in the grains and vegetables passes into the eater. We receive it by eating the flesh of the animal. How much better to get it direct, by eating the food that God provided for our use!"—The Ministry of Healing, 313.

Man cannot eat much grass and hay, so the cow serves us in changing this to milk. However, the chemists are busy taking out of hay such products as the protein, so it can be eaten by man. Methods are being devised to break down the cellulose in plants so it can be digested by man. Each day in Wisconsin many tons of yeast are made from the wastes of paper mills. Yeasts are among the simpler plants that are readily digested by man. Yeasts are among the richest foods in vitamins and protein.

As the population of the earth grows very great most people will have to turn largely to vegetarian diets. Furthermore, as the demand increases for grains for cereal foods, man will no longer be able to afford the luxury of alcoholic beverages. At present grains are fermented and the alcohol is distilled off. The valuable food residues of vitamins, protein, and minerals are now fed to animals to produce meat, milk, and eggs. In order to feed large populations, alcohol production will have to cease, since it involves the use of grains that can be eaten by man.

Likewise, as food becomes scarce man will no longer be able to afford the luxury of wasting land in the production of tobacco. Usually this is rich land for growing grains.

There is no basis for believing that these changes to universal vegetarianism, to the cessation of making alcohol, and the growing of tobacco will occur within our lifetime, but certainly they may be expected within a century unless vast numbers of people are killed,

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or the growth of the population is checked. At present our problem is to discipline ourselves in our food habits and ways of living in order to ensure optimum health.

In some respects it might be easier to write about the areas in which nutrition specialists and the writings of Mrs. Write may seem to disagree, because the area is so much smaller. These areas are probably owing to changes in food technology. The raw milk in the days of Mrs. White was a carrier for many contagious diseases, such as tuberculosis, dysentery, and typhoid fever. This may explain, in turn, why she declared that cheese was not a satisfactory food. Perhaps on the same basis we should understand her further statement: "The use of milk [in bread] is an additional expense, and it makes the bread much less wholesome."—The Ministry of Healing, 301. Products like dry skim milk, now used in bread making, were unknown in the lifetime of Mrs. White. Skim milk was fed to the pigs in her day. It contains the most important nutrients of the milk in terms of calcium, protein, and vitamins.

### **Discussion Summed Up**

To sum up the discussion: Every modern specialist in nutrition whose life is dedicated to human welfare must be impressed in four respects by the writings and leadership of Ellen G. White.

In the first place, her basic concepts about the relation between diet and health have been verified to an unusual degree by scientific advances of the past decades. Someone may attempt to explain this remarkable fact by saying: "Mrs. White simply borrowed her ideas from others." But how would she know which ideas to borrow and which to reject out of the bewildering array of theories and health teachings current in the nineteenth century? She would have had to be a most amazing person, with knowledge beyond her times, in order to do this successfully!

In the second place, everyone who attempts to teach nutrition can hardly conceive of a leadership such as that of Mrs. White that was able to induce a substantial number of people to improve their diets. In the third place, one can only speculate about the large number of sufferers during the past century who could have had improved health if they had accepted the teachings of Mrs. White.

Finally, one can wonder how to make her teachings more widely known in order to benefit the overcrowded earth that seems inevitable tomorrow with the present rate of increase of the world's population.

In spite of the fact that the works of Mrs. White were written long before the advent of modern scientific nutrition, no better over-all guide is available today.