Book Reviews

The Food Factor, Barbara Griggs. Viking Penguin Books, Inc. New York 1986. 390 pp. U.S. $19.95

This is a fascinating book. For the first time I have a clear picture of the struggle between nutritionists: between practical or clinical nutritionists who reason after seeing how malnutrition destroys health and its restoration by good nutrition, and theoretical nutritionists who reason first, from chemical analyses and faulty animal experiments, and then know what good nutrition is. The history of nutrition is a history of conflict, a seesaw battle between both schools which began when chemists showed all food could be fractionated into three main artifacts, protein, carbohydrate and fat. During the second half of the nineteenth century, theoretical nutritionists were convinced no other food constituents were present or would be found, that good nutrition merely meant a proper balance between these basic three artifacts. They ignored the fact that these artifacts do not exist in nature. We do not eat natural protein or fat or carbohydrate. We eat foods which are protein rich, or fat rich, or carbohydrate rich, where these constituents are present in a complex biological, three-dimensional structure. By ignoring the importance of the whole structure, they encourage the preparation of artifacts such as milk substitutes, puddings, pastry and the 10,000 or more food artifacts available in modern supermarkets. The word "balanced" is one of the most destructive slogans or, more accurately dogmas. It is the first commandment of the nutritional establishment which can be written, "There is no nutritional sin if it is balanced." The dogma of balance is the main reason why we have so much chronic disease in cultures which adhere to it.

Over the past 150 years, we have inherited three parallel trends, like rivers flowing forward in time. The first is the increasing destruction of our food, made possibly by sophisticated chemistry and mechanical engineering. Examples are the manufacture of white flour, or any of our commercial cooking oils, or sugar. These processes are a kind of perverse manufacturing process. Usually one manufactures an article by beginning with simple elements and creating something more complex, like a computer or a car. But in the food industry, one begins with something already complex, like wheat, and fractionates it to something simpler, like flour, or bran, or wheat germ. Flour is a degraded product from wheat, the product of a destructive process, not a constructive one. Nearly eighty-five percent enters the kitchen. Modern processing converts good food (whole wheat which costs a few cents per pound at the farm) to junk (i.e., breakfast cereals at over a dollar per pound).

This is not to say that processing must be bad. The same creativity which was used to convert good food to palatable junk can be used to deliver good food in an equally palatable form.

The second parallel trend is the increasing degradation of our health with an enormous increase in chronic degenerative diseases. Over half of our population suffers from one or more of these physical and mental diseases. This during an era when the major killers of the previous century have been controlled by public health measures and by major improvements in medical and surgical practice. Had there been no increase in chronic diseases, projections made in 1950 would have been reasonably accurate. When Canada began to introduce its various health plans, it had no idea that today all disease-related costs would take up such an enormous portion of every government's budget. The remarkable discoveries of modern medicine have been swamped by the enormous increase in these chronic illnesses.

The third historical trend is the gradual realization that the first trend, the destruction of the biological quality of our national food, is responsible for the second trend, the increasing illness of our society. It is the third trend which is described so well by Barbara

Griggs in this remarkable account of the battle between the two main antagonists.

I should be thoroughly ashamed of my profession, and often I am, for the role it has played ;and continues to play in supporting the theoretical school. It has almost totally ignored clinical nutrition, leaving it to non-clinicians — the professors of chemistry and medicine, the hospital and government dietitians, and nutritionists, who can not observe how good nutrition banishes disease. It has given blind, loyal service to those nutritionists who reasoned a priori, who were devoted to theory, to dogma and to simplistic ideas such as a balanced diet provides all nutritional needs, such as vitamins are only needed in minute amounts present in a balanced diet, and so on. Yet I am not, for I know that physicians have been in the forefront in demonstrating that the amount of disease in any community is a direct product of the degree of malnutrition that society is exposed to. These pioneer clinical nutritionists, their work and their controversies are described by Barbara Griggs. But their work has been popularized by a large number of non-medical nutritionists like Adelle Davis, Carlton Fredericks, Paul Bragg and others. Clinical nutritionists, i.e., nutritionists who use food in their treatments, usually depend upon foods to which we have adapted during evolution. Elsewhere I have described this food as fresh (alive), whole, non-toxic, varied, indigenous and scarce. The first attack upon the use of these foods occurred with the introduction of processing. At first this was crude so that even the white flour of 300 years ago was much more nutritious than the best white flour today. The discovery of the artifacts — proteins, fats and carbohydrates — hastened the process. Physicians were already showing that dogs and soldiers fed on whole wheat bread were much healthier than those fed on white bread. They were vilified and ignored, and still are.

A second battle began when accessory factors, later called vitamins, were discovered (more accurately, shown to be essential). The early vitamin pioneers were treated as usual by the medical profession — they were ignored and later attacked. The vitamin pioneers then committed one of the major sins against medical ethics — they went public. Elmer McCollum appealed to the public in lectures, news reports and stories before his Vitamin A work was accepted. It appears as if physicians were incapable of accepting new data, being satiated with old dogma. They needed the spur of public agitation to move.

It was absolutely ridiculous to think that diseases as complex as pellagra, beri beri and scurvy could be caused by a deficiency of simple factors. Especially when everyone knew they were caused by infections. Only a quack could entertain these foolish notions. They all knew one needed only protein, fats and carbohydrate.

But the vitamins were eventually accepted. The golden age of vitamin discovery and application came between 1930 and 1940 when it was terminated by the war and by the introduction of antibiotics and the wonder drugs (steroids). With this acceptance came a new set of dogmas based upon early information about vitamins; they were defined as factors required in very minute quantities. This concept, useful at one time, corrupted all vitamin research later on, except that clinicians began to treat an amazing variety of diseases with vitamins in quantities much greater than those called for by vitamin theory. Thus, pellagrologists had to give 600 mg. of Vitamin B-3 to cure chronic pellagra. They also found patients got well on vitamins even though they did not have the classical deficiency disease. To keep the one vitamin/ one disease dogma intact, patients who did not have the skin changes of pellagra but got well on Vitamin B-3 were called pellagra sine pellagra.

This classical battle is still being waged on an even larger scale. Witness the Vitamin C war with Orthomolecular physicians led by Irwin Stone and Linus Pauling ranged against the establishment led by V. Herbert and the like.

Niacin is one of the vitamins now recognized as an honorable member of the hypocholesterolemic team. It could no longer be ignored once it was proven to decrease mortality and increase longevity. But most doctors think of it as a drug, not a vitamin. Another battle is the carbohydrate field. Theoretical nutritionists have lumped together all food artifacts which were broken down in the body to simple sugars. They saw no essential difference between table sugar, starch, or foods such as potatoes or wheat. The carbohydrates which broke down with

difficulty such as fiber they considered unimportant. However, a few dedicated physicians have shown fiber is important, but this had been common knowledge among whole wheat bread consumers. This battle, too, is almost won, but the victory is confused. The need for fiber is best met by eating whole foods which contain fiber, not by adding bran to junk foods. The addition of bran is useful, but it avoids the proper attention to whole foods.

K.W. Heaton's article, "Healthy Eating — Consensus at Last?" in *The Practitioner,* February 1987, volume 231, pages 199-202, shows how far we have gone. He lists the following guidelines.

1. Attain and maintain ideal body weight.
2. Cut down fat, especially saturated fat.
3. Cut down sugar.
4. Eat more fiber-rich, starch food.
5. Cut down salt.

He concludes, "In practice low fat and low calorie diets are high-fiber, low sugar diets. These are the diets our ancestors ate. We can be sure we are adapted to them. We can be sure they will do no harm."

Today, the battle between clinical nutritionists (people who use nutrition as therapy) and theoretical nutritionists (people who follow only theoretical principles but do not see their results), is being waged over a wide front. The battles include:

1. Are additives harmful?
2. Are vitamin supplements needed?
3. Are mineral and amino acids needed as supplements?
4. Do food allergies cause illness?

The theorists loudly proclaim, "No!" The clinical nutritionists, "Yes!"

Barbara Griggs' book should be used as the basis for teaching clinical nutrition to all nutritionists and medical students. In this way they can discover that yesterday's heresies are today's orthodoxies. They can learn to remain tolerant of new ideas and to use them to make their own observations, not to depend only on the view of their professors who pass on the orthodoxies.

The Food Factor, will be one of the classics in nutrition. I left off reading Barbara Grigg's book with the same feeling I had after I read Cleave's classic, *The Saccharine Disease.* I am no longer the same physician.

A. Hoffer, M.D., Ph.D.

The Roots of Molecular Medicine — A Tribute to Linus Pauling, Edited by Richard P. Huemer, W.F. Freeman and Company, New York. 290 pages, 1986.

Students of Orthomolecular medicine must read this book. They will then understand how orthomolecular medicine arose and what kind of a man Linus Pauling is to have made this major contribution to modern medicine and health. First about the man, Dr. Pauling, a double Nobel laureate — once for chemistry and once for peace — is a winner. He has been involved in a number of major controversies — scientific and political or humanitarian — and has won them all. A betting person would be foolish to bet against a consistent winner. But why is he correct?

Very simply. Linus Pauling solves the problems by thinking about them. He thinks his own thoughts and bases his solutions upon hard scientific data. In sharp contrast, his physician critics base their ideas on hearsay from medical school or from their leaders. Linus Pauling examines the data himself. Recently, on the Phil Donohue show on which he appeared a few days after I was with him at Ben Gurion University to dedicate a chair in Orthomolecular psychiatry, he remarked that he "...had started to think about nutrition twenty years ago." This he did, not by learning the opinions of the modern leaders of nutrition and medicine, but by reading the newer ideas of a number of physicians and scientists who were beginning to use unorthodox treatments using large dosages of vitamins. They were drifting from toximolecular medicine to the use of nutrients and nutrition. I am happy to have been one of these innovators.

Thinking about the subject twenty years ago, Linus Pauling concluded that there was merit in these ideas which were in line with his own views of the molecular basis of medicine. Even more, he developed a theoretical basis which shows how certain nutrients became essential, and why optimal dosages were often much larger than the small RD As recommended by the nutritional establishment. And, even more, at an age

when almost all men and women retire, he entered a new career which he has now enjoyed for twenty years and will probably enjoy for another twenty.

As a physician, I am ambivalent about my association with the medical fraternity. I am happy to be in a profession which has discovered so much information in the field of disease and health, but I am unhappy and distressed with such an association which almost invariably rejects at first hand the discoveries and views of scientists which it will eventually embrace with equal fervor. Is there no end to this irresponsible hostility of physicians toward scientists such as Linus Pauling? But this is the way it is.

The debate is usually over when several generations of physicians enslaved by old ideas pass on, leaving the field to younger generations not so fearful of these ideas. We owe an enormous debt to Linus Pauling for having made such a major contribution to medicine, for coining the word "Orthomolecular," a word that we can all heartily endorse, and for having given us twenty years of his life during which he has shown the immense importance of Vitamin C in the prevention and treatment of a variety of major diseases and minor ones including cancer and the common cold, and for fighting against a solid medical establishment unwilling to concede that he is once more correct.

We also owe a debt of gratitude to Dr. Richard P. Huemer and to the Orthomolecular Medical Society for having generated the papers which were read at the meeting of the O.M.S. in San Francisco, May 7th and 8th, 1983, and for having seen to it that this book was published in such a fine form.

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High-Protein Oedemas and the Benzo-Pyrones, by J.R. Casley-Smith and Judith R. Casley-Smith, 536 pages, 170 illustrations, 60 tables, more than 1,700 references, J.B. Lippincott Company, Hagerstown, MD 21741 (1986) $49.50.

This book constitutes an important contribution to the field of Orthomolecular medicine. It deals with the benzopyrones, a class of substances including coumarin and the flavonoids (Szent-Gyorgyi's "vitamin P", citrin, rutin, hesperidin, and other substances, many of which are found in plants and might be considered to be normal constituents of the human body). Most of the benzopyrones, like other Orthomolecular substances, have remarkably low toxicity.

The special interest of the authors is in reviewing the evidence showing that the benzopyrones have the valuable property of controlling oedema, reducing the swelling and pain associated with many diseases. These diseases include diseases of the eye, venous insufficiency and other varicose diseases, including those due to pregnancy and from the use of oral contraceptives, as well as hemorrhoids, and microvarices of the vocal cords, also accidental or surgical trauma, hepatitis and cirrhosis, diabetic retinopathy, and cancer, probably including Kaposi's sarcoma. Side effects are said to be negligible.

The pyrones can be described as a benzene molecule with carbon atom 1 replaced by an oxygen atom and with another oxygen atom attached by a double bond to carbon atom 2 (alpha-pyrone) or carbon atom 4 (gamma-pyrone). Coumarin (5, 6-benzo-alpha-pyrone) has a structure similar to that of naphthalene, with carbon atom 1 replaced by oxygen and another oxygen atom attached by a double bond to carbon atom 2. Chromone (5, 6-benzo-gamma-pyrone) has a similar structure, with the carbonyl group formed by carbon atom 4. Flavone is chromone with a phenyl group replacing hydrogen on carbon atom 2. Quercetin is flavone with 5 hydroxyl groups replacing hydrogen, and other bioflavonoids have similar structures.

The possibility that the benzopyrones would have value in the treatment of cancer

has special interest for me. In this book references are given to a number of reports about treatment of cancer with coumarin and other benzopyrones. The authors mention that a multi-center randomized double-blind trial on 150 melanoma patients, using 50 mg/day of coumarin, has been in progress for two years, with very good preliminary results, and that another trial using 400mg/ day has been started in Australia. A trial of coumarin and troxerutin in the control of lymphedema secondary to mastectomy has been underway for over 10 years. The authors report that there have been no deaths in 50 women treated with coumarin for this period of time, whereas 12.5 deaths would have been expected in these 50 patients if not treated. The authors mention that these women may have been very fortunate to have developed post-mastectomy lymphedema, because it led to their being treated with coumarin, which may well have helped to control their cancer. The authors mention that trials of coumarin, 400 mg/day, in the treatment of AIDS patients are now in progress in Uganda and Zambia. They suggest that in general the value of benzopyrones in the treatment of cancer results from their potentiating effect on the immune system.

I have not seen any mention of treatment of cancer patients by benzopyrones along with high-dose vitamin C. The fact that large amounts of vitamin C and of bioflavonoids are often found in the same plant suggests that a trial of the two substances together in the control of cancer would be worth while.

Linus Pauling