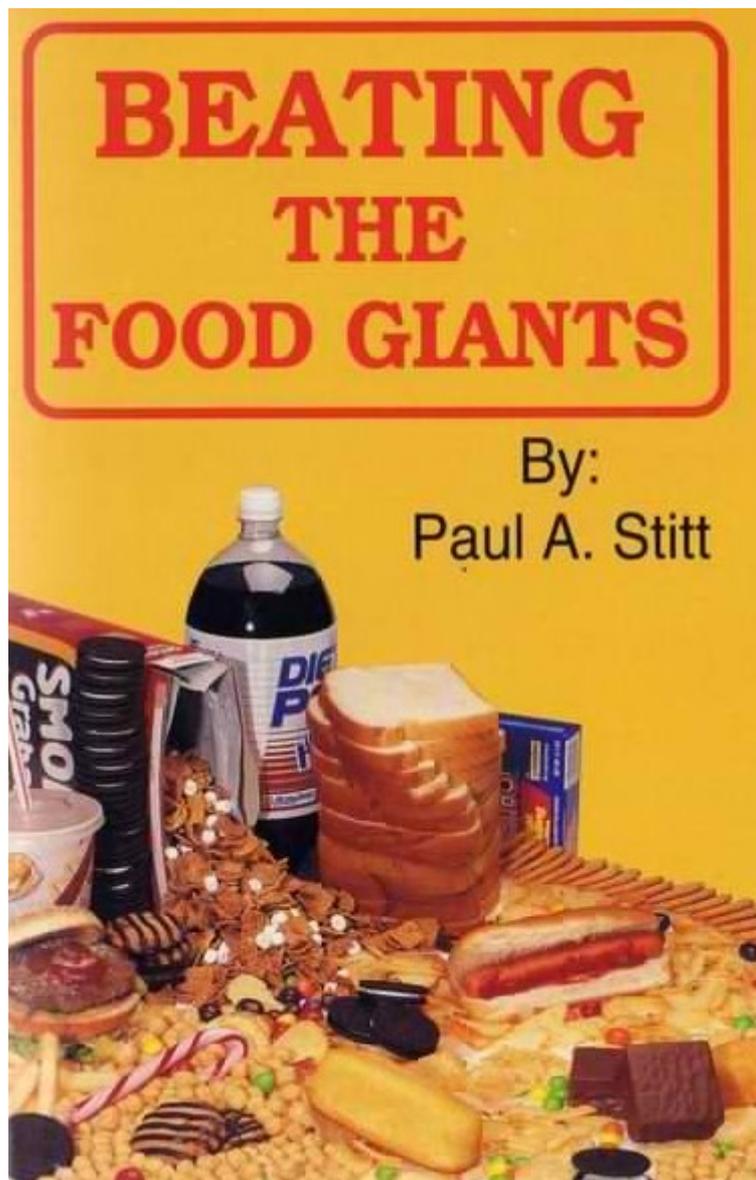


# BEATING THE FOOD GIANTS

by Paul A. Stitt



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Ever wonder why you often don't feel good, can't think, can't remember, can't sleep and don't feel like working either. If you want the answer, just read "Beating the Food Giants." Paul Stitt gives a first hand account of the inside workings of the giant food companies of America. He tells how they program you to crave certain foods, to overeat every day, to make you feel stuffed but hungry, and how this "mad energy" of the food industry is destroying you and what you can do about it.

Stitt tells how you can feel 10 years younger, how you can restart your life and slowly by example of his own life, how you might be able to start your own business and help other people at the same time.

## ABOUT THE AUTHOR

Paul A. Stitt was born on a farm near Verona, Illinois, Oct. 10, 1940, and has devoted his entire life to human nutrition. From gathering eggs and feeding pigs as a boy, to his four years as a food scientist for Tenneco Corporation and the Quaker Oats Company, to his development of three patented protein-synthes's techniques, and finally to the establishment of his nationally recognized bakery, Natural Ovens of Manitowoc, Paul has been working to produce better foods and to inform the world about the dangers of our processed diets.

He received his undergraduate degree in chemistry at Beloit College in 1962, and his Master of Science Degree in biochemistry from the University of Wisconsin at Madison in 1968. From 1968 to 1970 he worked in protein research for Tenneco. Paul then did exploratory research for Quaker until he was fired for insubordination in 1972. As a food scientist he learned that the American food industry was out to deceive the public. It was his constant insistence that the Food Giants produce nutritious, non-addictive foods that irritated his employer and led to his eventual termination.

Paul spent the following three and a half years in independent research, and in 1976 founded Natural Ovens of Manitowoc Bakery to prove that commercial production of nutritious foods is feasible. Today Natural Ovens is one of the nation's largest and fastest growing distributors of whole-grain breads and natural foods.

## ACKNOWLEDGEMENTS

I sincerely appreciate the many fine people who have supported me in the last two decades and have helped make Natural Ovens of Manitowoc Bakery a reality.

Many media people have been especially helpful in spreading the word. Roy Leonard of WGN Radio in Chicago and Phil Donahue have been especially important in this regard.

Several others have commented on the first edition and have made suggestions for this new edition. Most important of these is Dr. Linus Pauling of the Linus Pauling Institute of Science and Medicine. I owe a special debt of thanks to those who have stood by me through trouble and controversy, and whose support has meant the world to me. Barbara Reed-Stitt, my wife since 1982, especially has encouraged me during hard times in my efforts to help humanity. I also thank Dr. William C. Dam for his support.

I would be much remiss if I failed to thank those who have worked diligently to help me put together this edition: Lori Christel, Heidi Klein, Robert Nichols, Kevin Reilly and Paula Wagner.

Most of all, I want to thank the tens of thousands of people from all over America who have written letters of encouragement and who purchase Natural Ovens products. Though there are so many of you, I feel that each of you is a friend; getting to know you all has been the most enriching experience of my life.

Paul A. Stitt

## FOREWORD

During a decade spent in medical school and specialty training, I learned everything I possibly could about disease and how to undo its damage through medical intervention. Armed with innumerable pills, injections, and medical procedures, I felt prepared to keep people healthy.

I first began work as a physician in an African mission hospital. Though I encountered many unusual diseases, nothing was more surprising than discovering that my African patients rarely suffered from heart disease, colon cancer, and other diseases so prevalent in "advanced" societies. It was then I first suspected a diet of unprocessed, natural foods could be the key to preventing disease and promoting health.

I met Paul Stitt by chance. Following interviews we both had given for a radio station in Crystal Lake, Illinois, he left a copy of his first book, *Fighting the Food Giants* for me to read. That book not only changed my life, but led me to fundamentally alter the nature of my medical practice. I now begin each day with Natural Ovens bread, granola, or muffins. In my office, I encourage my patients to adopt a wholesome, nutritious diet.

I am grateful that Paul Stitt has always chosen to place himself on the cutting edge of his profession as a biochemist. Not only does he understand the elements of nutrition, but he has exposed just how we are being cheated, if not outright poisoned, by the food industry. He has a message and a mission. I congratulate him and wish him continued success.

William C. Dam, MD, Internal Medicine, Westlake Clinic, Ingleside, Illinois.

May 18, 1993

## INTRODUCTION

Our 50 year national experiment of letting the giant food companies dictate what we eat, how often we eat and how much we eat, which began in 1945, is now beginning to reveal its full effect.

We are now a nation where 90% of the people cannot pay their own lifetime medical expenses. Lifetime medical expenses are now so great that no one else can pay them either — neither employers nor government nor any other group.

We can live without cars, computers, fancy homes and new clothes every month, but we can't live without being healthy. We Americans brag about having the cheapest food bill on Earth, but is it so cheap when it's impossible to pay the sickness cost of consuming "cheap" food. In actuality it's not so cheap—on a per-pound, per-week, or per-lifetime cost, a diet of fresh fruits, vegetables, whole grains and a little meat is far cheaper than the junk food the Food Giants grind out and force down our throats.

In other words, the do-gooders of this world have it all wrong. "Health" care is not expensive — it's free. Because a healthful diet is less expensive, short term and long term, than an unhealthy junk food diet.

Sickness care is bankrupting our country and is leading the way in destroying our way of life and our culture. Staying healthy is by far the least expensive way to live — and the most fun. Why choose any other? Why become a burden to your family and society?

This book will tell you just how to protect yourself from the greed (and fat) of American food companies.

### 1. THE FIGHT BEGINS

My first experience in the food business was hunting chicken eggs on my father's farm near Verona, Illinois. He was a very conscientious farmer of 320 acres of land, 100 head of cattle, numerous pigs, chickens and other animals that made up our farm. My earliest memories are of farm life and farm chores, and until I moved away to college as a young man, raising food was my life.

Memories of the food we ate are also vivid in my recollection. I remember how my mother would go the kitchen while we were doing chores and whip up a huge "farm breakfast" for us eight children. We'd gobble the pancakes, eggs, fried potatoes, ham and sausage hungrily, and smother it all with butter and a variety of jams and syrups.

We raised most of the food that we ate, but everything was cooked in the usual American way. Peeled potatoes, meat with gravy, and vegetables cooked to limpness were our standard fare. Actually, my mother's cooking was considered quite good at the time. In fact, it was much better than food of 1993—over-processed, overcooked and over-sweetened. Our favorite meal was Saturday noon dinner — lots of great northern bean soup with a pork hock in it. When snack time came we had a little soda pop—three ounces — and a little of the other junk and convenience foods that were typical of the diet of many Americans in the '50s. Our folks rationed them because they were very expensive. There weren't nearly as many junk foods on the market then, so our eating habits weren't too bad, at least by today's standards compared to the diet of the '90s, our family's diet was very good. My family always planted a large garden so that we had lots of fresh vegetables to eat from June to November, and my mother did a lot of freezing and canning of the fresh vegetables, without adding any preservatives. My parents always bought many bushels of apples, which we stored in our well pit, and sometimes they even went to Georgia, to buy fresh tree-ripened

peaches.

In October my father always went to the farmers in Central Wisconsin, and bought many bushels of potatoes, which we consumed with the skins on. But some aspects of our diet weren't the best either. My mother sometimes made our bread, but other times she bought bread to fill us up. This bread was always the cheapest white bread in the store. My father complained about the limp, pasty stuff, but there was no other kind of bread available in the stores. Dad would grouch that a 39-cent loaf contained only two cents of grain, and that it was the miller and the baker who were robbing us. In fact, my father complained about the taste and cost of all processed foods. He used to tell us about the time my Grandfather got his first spoonful of a newfangled invention called "corn flakes." Not fooled by the cereal's sweet taste, Grandpa proclaimed, "If you put milk and sugar on sawdust, it'd taste good too!"

Despite Dad's dissatisfaction with processed food, fresh fruits and vegetables were rather scarce during the winter months, and the only vitamin supplements we knew about were the ones we gave our livestock.

Nonetheless, we would always look forward to Mom's return from her weekly shopping trips; she would invariably stop for a dozen glazed doughnuts on the way home — and did we love them! My brothers and sisters and I could finish the whole package in no time, and I remember thinking that nothing in the world could ever taste as good as a glazed doughnut.

The lunches I took to the one-room school I attended were always white-bread sandwiches, and in high school I ate the typical starchy, fatty fare of the cafeteria. About all you could say for our school hot-lunch program was that it was indeed hot. We could go back for seconds, and we were encouraged to gorge ourselves on surplus spaghetti and other leftovers.

Looking back from the vantage of my subsequent learning, I now see some of the effects that our sugary, fatty, high protein diet was having on my family and friends. It was considered natural then, despite our huge breakfasts, that we would be hungry again in an hour or two. By the time we got to school, we were looking for something to eat, and we'd start nibbling on anything we could get from friends or local stores. It was also common that after a Herculean noon dinner we would all lie down for a twenty-minute nap, the weight of the heavy food in our stomachs making our eyelids just as heavy. A well-trained nutritionist would instantly recognize this as the hypoglycemic effect, the disorder that occurs when the blood-sugar level goes on a wild roller-coaster ride after you eat too much sugar and refined starch. We thought it was perfectly normal.

I also recognize that it was our eating habits that tended to make everybody I knew heavy. My father weighed 220 pounds, and my mother always watched her weight. Nearly all of the girls I went to school with had noticeable weight problems, but it just seemed so natural and normal for everybody to be heavy like that. It was a very rare thing for someone to be slim. The only one in my family who escaped chunkiness was my older sister, who always ate like a bird. She would never eat more than a tablespoon of any vegetable, nor more than an ounce of meat at a time. But there was a tendency to think that there was something wrong with a slim person, and we thought it was very strange that my sister did not eat like the rest of us.

One thing that food did not affect at first was my deliberation over what I was going to do with my life. In grade school, we had a workbook called "Think and Do." My father loved that title and constantly repeated it to us kids — Think and Do. I believe that has helped me all of my life.

Another family saying that has impacted my life is from the tombstone of my Grandfather, who died the same month I was born. Each year on Father's Day, we would visit his grave and celebrate

with a picnic under the mulberry tree my grandfather had planted. The epitaph on his tombstone reads, "He who helps others, lives not in vain." When I was trying to decide on a career, I had two good values to build on — "think and do" and "he who helps others, lives not in vain."

The day after I graduated from high school, I decided that I wanted to do something important with my life, and my high school guidance counsellor said I'd probably be pretty good at anything I tried. I decided to become a nuclear scientist. I left for Beloit College in Beloit, Wisconsin, with that thought in mind, but after my first physics course I decided that perhaps medicine would be a better field for me. When I attempted to get into medical school, however, I found I lacked the necessary money, grades or influential relatives to pull it off, so I began graduate studies in endocrinology at the University of Wisconsin at Madison, and later changed my focus to biochemistry.

It was my basic "do-good" attitude toward life that made me want to enter medical school in the first place; thinking that, as a doctor, I could help the under-privileged people of the world. With that road closed, I felt that biochemistry would be another field in which I could help solve the problem of world hunger. Unfortunately, I found that biochemistry and nutrition courses were not taught with that in mind at all. They were approached as dry, stuffy disciplines, devoid of enthusiasm or relevance to real life. I sat through the seemingly endless lectures on carbohydrate metabolism and enzyme transfer, hoping that the professor would devote at least the last lecture to explaining how all of this technical information we were jotting in our notebooks and cramming in our heads applied to real life and everyday eating. But when that final lecture did come, the professor would almost brush the subject off by telling us that these things were not to be worried about, and that a person would get all of the nutrients he needed just by eating a variety of foods on a regular basis. I was a bit disappointed, but I believed what he said and accepted it as being as valid as his explanations of molecular metabolic processes.

If I could have made a connection between the things he was telling me and the drowsiness, hunger, crabbiness and overweight of my youth, perhaps I could have seen the fallacy of my professors' nutritional advice. But I didn't make the connection, and neither did my fellow students, nor my professors, nor any of the nutritionists and biochemical academicians of the time. The reason is not difficult to understand: The education I and those who teach nutrition today got was from the men who got their own education in the '30s and '40s. In those days, whole vegetables and fresh fruits were, with little exception, the only kind to be had, and in the early part of this century the professor's admonition to rely on a varied diet would have been sound.

But in the years since World War II, fresh fruits and vegetables and whole grains gradually disappeared from the American diet, and were replaced by a plethora of canned, frozen, processed and refined products, many of them having little nutritional resemblance to the foods before processing. In short, Americans had acquired totally different eating habits during the time between my instructor's student days and my own, and the change in the foods in the supermarket had sneaked up on the nutrition establishment, leaving the professors totally unaware of the hazards and tragedies associated with the new American way of eating. The crisis is that their students, the nutritionists of today, are almost as completely in the dark as they were!

In graduate school, before I learned of the real problems involved in American nutrition and the role of the Food Giants in intentionally bringing those problems about, I felt that as a biochemist I would be in the best position to help solve the problem of world starvation, a problem about which I was becoming increasingly concerned. One of the term papers I wrote was on Kwashiorkor. It is the disease of the bloated-belly, tragic-eyed children we have grown sadly accustomed to seeing in articles and documentaries about the world's starvation centers. Affecting perhaps as many as 70 million of the world's people, Kwashiorkor is caused by a protein deficiency that withers muscle and nerve tissues. Children in their formative years are the most heart-rending victims; they are

seldom lucky enough to survive infancy, and even if a Kwashiorkor victim has that luck, the degenerative effects of the disease are almost irreversible. Entire populations have been grossly stunted by Kwashiorkor during times of famine and war, and it is this very stunting of the physical and mental resources of a people that makes it so hard for those in the "have-not" nations to achieve peace and plenty.

My research about Kwashiorkor disturbed me deeply. If only we could find the protein source so desperately needed to feed these starvation victims! But there is a greater tragedy to Kwashiorkor, one of which I was ignorant at the time. The real cause of the disease is not a lack of food, nor is it a problem of distribution. The real source of the problem is the way the major protein sources, usually rice and wheat, are processed before they get into the hands of the hungry. Whole, unprocessed brown rice is produced in ample abundance throughout Asia, and whole wheat is available almost around the world; but when the rice or wheat is processed, i.e., when the bran and germ are removed, the grain is essentially stripped of all major nutrient value. These Kwashiorkor victims don't have too little to eat. The tragic truth is that the food they do get has been ruined before it gets to their mouths. But I was as naive about the processing problem as are most nutritionists, and my thinking at the time was that a new source of food had to be found, a fabricated, man-made food if necessary, or the hungry would continue to succumb to Kwashiorkor. I was shocked when my research revealed how widespread the affliction was, and I decided that I had to go and see for myself what conditions were like in some of the countries where starvation was a part of daily life. So, in the midst of my graduate work, my wife and I traveled to Colombia, South America in 1967.

Many of the things we saw there we could have seen in New York or Chicago: the big cities, the crowds, the slums. It wasn't until we went out to the countryside that we began to see the really serious problems, and the underlying causes for them. We would ride on the local buses with the peasants returning to their villages. You can see a great many things from a bus window.

There were people leaning in front of their hovels seemingly with nothing to do; yet the land was teeming with fruit and appeared to be well suited to other types of crops as well. It seemed to us that there was a lot of unused land, and we didn't see people tending gardens or working farms. As I was later to learn, these peasants had been taxed or otherwise forced off their land, so the land could be purchased by rich ranchers who ran cattle on the land. While the evicted peasants starved, much of the land was destroyed by cattle destined for Burger King hamburgers. The animals packed the ground so tight that, when it rained, the water couldn't soak in but instead ran off and caused terrible erosion.

The peasants were being forced to move in ever-increasing numbers to the urban areas, where they would join the throngs of starving beggars in the city streets.

In Colombia there are very rich people and very poor people, and the places where they live are about as different as day and night. But, there is one common denominator, one recurring landmark as common to the shiny new apartment complexes as it is to the tin-hut villages: the Coca-Cola sign. I found soda pop advertisements were amazingly ubiquitous, and I travelled to very few places where the familiar red-and-white sign was out of sight. It cost only a few pennies a bottle in Colombia, and Coke was very popular. Just how popular it was became apparent when I attempted to help an old man who really looked like he needed something to eat. I gave the starved-looking man some money and asked him to buy two cartons of milk, one for me and one for himself. He returned with my milk, but he smilingly showed me that he had purchased a bottle of Coke for himself.

Coca-Cola has extended its growing empire deep into Latin America. For instance, Coke has seized control of 42% of the soft-drink market in Mexico. Frances Moore Lappe and Joseph Collins have

written of one small Mexican village, Olinala, whose 6,000 inhabitants put away about 4,000 bottles of Coke a day! 1

My encounter with the old man and many other experiences pointed out to me that the people of all classes in Colombia had made the Western lifestyle their goal and dream. People would beg and plead to buy a tourist's extra shoes, blue jeans and pocket radios, but turned up their noses at the nutritious foods that were growing in their own country.

Many times, nutritional grains and other foods had acquired a stigma as "poor people's food." Quaker Oats, a company for which I was later to work, was distributing a nutritious product in Guatemala at the time, marketing it specifically for a peasant clientele. This product was a mixture of various grains and was sold as a gruel, the kind of stuff you see them dishing out on C.A.R.E. commercials. When I worked for the company, I found out that Quaker was allowed to market its new line of toys in Guatemala if the company would also make a cheap, nutritious food product available. The company wanted to make money on their toys, so they made the product available without really caring if any of it was sold. It was put up in drab, ugly one-pound packages and marketed as poor people's food. Naturally, the poor Guatemalans had too much pride to be seen buying the stuff in stores, but a storekeeper told me that affluent people were his biggest customers for the whole-grain meal. When cooked properly and combined with fruit, the cereal had a delicious flavor that was far superior to oatmeal or rice. Yet it was shunned by the people who needed it most, because it didn't have an image of being some athlete's "favorite cereal."

I also learned at Quaker that the stuff sold so poorly that shop owners had to be bribed into carrying it at all. The shipments of meal came in bulk, packed 35 pounds to the bag. Also enclosed were 40 individual bags. The extras were supposedly provided in case some of the regular bags broke, but the store owners were covertly encouraged by Quaker to short each of the intended one-pound bags and thereby fill the extra five, selling all 40 at full price. This was the only way that many merchants could be convinced to sell the product, and even then, because of the lack of adequate promotion, it would sit on the shelves for months on end.

There was also a big push to get mothers to feed their infants baby foods and formulas instead of breast-feeding them. Billboards depicted smiling mothers who fed their babies with bottles as the perfect mothers, while suggesting that mothers who breast-fed their children were like an "animal." Thus, formula was the overwhelming choice of women seeking the Western lifestyle, but by mixing the formula with impure water, or over-diluting the expensive powder, mothers were subjecting their infants to diarrhea and death on a massive scale.

Despite the depressing scenes I had witnessed in Colombia, I returned to complete my graduate studies with renewed enthusiasm and concern. The trip, along with the studies of Kwashiorkor, convinced me that I should devote my life to helping hungry people by working in the established channels in the food industry. I had been impressed by the efforts Quaker had seemingly made in helping the hungry. I felt that by producing new sources of protein and other nutrients, enough food could be produced to solve the starvation problems of the entire world. At the time it had not dawned on me what the real cause of hunger in the have-not nations was; neither did I realize that, right at home in the United States, malnutrition disguised as "the good life" was claiming and ruining more lives than anywhere in the world. And I never dreamed that both problems were caused by the very corporations I planned to work for.

In my last year of graduate work I learned about a process for actually creating protein from things like natural gas. The process seemed simple enough: Commonly occurring micro organisms were fed on a petroleum product, dairy wastes, and other chemicals under controlled conditions. When enough of the microbes had grown and reproduced, they were removed from their growth medium,

dried and used as feed. The process was in its infancy, and it had never been tried on a large laboratory scale, let alone commercially. Yet this seemed to be what I was looking for. My enthusiasm heightened when I attended at Rutgers University a convention of biologists and researchers who were interested in working on world hunger. I was very impressed by what I saw and heard. At the convention I met representatives of the Tenneco Corporation who later offered me a position on a research team which would attempt to make protein out of methane — natural gas — a superabundant material.

It seemed too good to be true that I could so soon happen on just the position I had always wanted. I was caught up, as were most scientists in the 1960s, with the idea that technology, the same technology that had ended smallpox and had landed a man on the moon, could solve all of mankind's problems. "Creating" foods out of otherwise worthless waste materials seemed to be just that kind of impossible dream — so impossible that it almost had to come true. But I, like the rest of the world, was soon to learn that, in too many cases, technology is at the heart of our problems; that it could be used toward devious ends as easily as it could be used to end human suffering. I pictured myself working with a big team to perfect synthetic protein, then building a few big plants in Africa or Asia, where the people would flock to work and to buy the protein. There was no doubt in my mind that if we could just create a cheap, nutritious protein source, the world would hail it as the end of world hunger. The only problem I saw was in perfecting the technology; I assumed that if we built a better mouse trap, the world would beat a path to our door.

My wife and I and our three children made the move to Piscataway, New Jersey, the site of Tenneco's research laboratories, in the fall of 1968. When I arrived, I found that our research director, Dr. Ira Hill, had gathered a small but excellent staff with whom to carry out the project. We had a diligent bacteriologist who searched the whole country looking for the heat-loving microorganisms we needed for the process. We had an analytical chemist to analyze our end product for nutritional value. We had a talented biochemical engineer to design our equipment and to do theoretical production studies. He also was experienced in methods of removing the protein-rich cells from the water medium. My job was to design and build the small-scale equipment for doing this job. I would get the various strains of bacteria from our bacteriologist, who looked at hundreds of strains to find the best, and grow them in a mixture of water, air and controlled nutrients. I would produce the bacteria on a small scale, then turn them over to the analytical chemist, who checked them for purity, safety and nutritional value. An outside consulting firm did the animal testing of our product, feeding the most nutritious samples to animals to check the product's palatability and effect on animal health. Each of the departments on the research team had several technicians.

When I joined the team in January, we were set to go. The company representatives stressed the time element, and seemed impatient that the process be developed in as short a time as possible. They didn't even take time to build an addition to their factory, but hurriedly cleaned out a storeroom for us to work in. There was a rumor that Tenneco's enthusiasm for the project was due in part to the prodding of a socially-concerned wife of one of the vice presidents. The rumor held weight because there seemed to be no one in the company who knew anything about biological processes. It probably seemed like a good idea to the corporate brass; such altruistic programs were good public relations at the time, and Tenneco was producing more methanol than they could sell. I don't think anyone in the company outside the research team expected us to succeed. It probably seemed outlandish to them that you could take natural gas, the stuff you burn in streetlights and kitchen ranges, and make food out of it. However, they did see the public-relations possibilities, and used the project in newspaper ads as one justification for their recent increase in gas prices.

Incidentally, this kind of thing goes on all the time. In the early '70s, Northern Illinois Gas ran large full-color ads in national magazines to inform the public that they were trying to make food out of methane to feed the world's hungry. When I tried to get a job with the project I found out that NIG

was spending five times more money on the advertisements than they were on the research itself. They gave one or two researchers an annual \$25,000 budget — hardly enough to keep a desk and a secretary. It was all window dressing, but I would never have known about it if I hadn't tried to get a job there. When, in the late '60s and early '70s, it became evident to many people that we could not go on abusing our natural resources and destroying the environment in the obscene way to which we had become accustomed, it was ironic that "environment" and "natural" became the advertising catch phrases of the very giant corporations that had brought about the disintegration of the biosphere in the first place. Petroleum and food companies were the first to take up the hypocritical call for cleaner air and more healthful food. Since I was working for a company which specialized in both, it was perhaps inevitable that I would be caught up in a public-relations scheme.

But this did not concern us at the time, and we set enthusiastically to work, all of the staff frequently putting in 14—or 16 — hour workdays to keep the project moving ahead rapidly. It was one of the best-directed research projects I have ever seen, devoid of the interoffice politics and backstabbing that are so common in corporate endeavors. Every day brought us closer to our goal. By the summer of 1969 we had made excellent progress in isolating the strains of bacteria appropriate to our purposes and I began producing the small-scale batches. By the following autumn we had made enough of a quality product to begin animal-feed testing, and by the end of the year we were getting highly encouraging results from our testing.

The tests showed that test animals—mice — thrived on the protein, and our biochemical engineer had produced studies to show that our process was economically feasible. In short, we had done what few believed possible: We'd shown that protein could be made from natural gas, that it could be done successfully on a large scale, and that it could be done cheaply (a pound would cost about 11 cents to produce, and would provide eight people with 100 % of their protein needs for a day). And we had done it in one year — half the time we'd been allotted for completion! Naturally, we were very pleased. We felt that we had done a great deal of good for the world. As the end of December approached, we planned a jubilant New Year's Eve party to celebrate our success.

When we were called into the vice president's office on the afternoon of New Year's Eve, we expected a raise and a pat on the back. None of us could recall a research project that had accomplished so much with so little time, money and personnel. After all, with our process, a plant covering one square mile could produce enough protein to feed ten million people! We gathered expectantly into the office, where the vice president of Corporate Research sat behind his desk with an expressionless face.

"Gentlemen," he said nonchalantly, "the Board of Directors has decided to terminate your project, effective immediately."

Our jaws dropped. We sat in stunned silence as he assured us that the company would help find new jobs for us, that our families would be taken care of, that we didn't have to worry about the future. They were actually firing us!

The party that evening was one of the saddest I've ever been to. Gone was the enthusiasm and idealism; my co-workers assumed a defeatist attitude, and none seemed interested in continuing the project. Another job had just played out, and now we would have to look for new ones. Several discussed going into detergent enzyme production, which was at that time a very lucrative fad for biochemists. It seemed to me that I was the only one left who still believed in the project. The starving people I had seen and read about were still out there, still hungry, still dying by the thousands. And here in our very grasp was the means to end their suffering, to rid the world of hunger and its resultant diseases and to bring new hope to millions of people. With this heart-quickenning prospect right in front of them, how could Tenneco possibly "terminate" the project? No

matter what angle I viewed it from, it seemed unbelievable.

The thoughts tormented me for days.

Finally, when I could stand it no longer, I marshalled my courage and called the president of Tenneco. How could they do this senseless thing?

"Friend," he told me, "if I had a whole mountain of protein, I wouldn't have the slightest idea what to do with it. Who's gonna buy something like that?"

I was dumb struck. What about the starving millions? Was the profit motive all that counted for anything? I told myself that it could not be so, that somewhere there must be a company which would embrace the project and develop it to full potential. But I was still naive, and I still believed that the best way to make money was to make things people really needed.

My next job, for the powerful and pervasive Quaker Oats Company, would rid me of that illusion.

## NOTES

1. Prances Moore Lappe and Joseph Collins with Gary Fowler, *Food First: Beyond the Myth of Scarcity* (New York: Ballantine Books, 1978), pp. 330-1.

### 2. INSIDE A FOOD GIANT

We began the work of shutting down the Tenneco project, putting the equipment in mothballs, turning our little research lab back into the storeroom it had once been. Although I was still disappointed about the outcome of my first employment, I was eager to carry on and continue my work with another company. After all, I knew that this was an exciting and important area of research in biochemistry, and that several corporations were working on similar projects. Moreover, I still believed in the value of what I was doing and had faith in the goal of finding a simple solution to world hunger. So, with the help of Dr. Hill, I began looking for another job.

We contacted several corporations, and I was given expense-paid trips to visit their facilities and talk to the people involved in the various projects. The first invitation I got was to tour the American Oil Company research facilities in Whiting, Indiana. The people involved in the company's attempts to produce yeast from paraffin seemed knowledgeable enough, and I noticed that they were using some very sophisticated instruments and equipment. But much of the inaction taking place led me to believe that I was looking at another example of corporate window-dressing for public-relations purposes. They were also highly secretive, and didn't want to let on too much about what they were doing — or not doing. I turned them down; I didn't want to get stuck in another situation where a lot of hard work would go to waste. Ironically, AMOCO eventually did build a commercial-scale plant to produce yeast. The product was sold as a flavoring for processed foods, rather than as a nutritional supplement.

I found a similarly disappointing situation when I visited the Gulf research laboratories in Pittsburgh, Pennsylvania. Their process was similar to AMOCO's, but was on an even smaller scale. They had only two or three researchers actually working on the project, but it seemed that they were spending most of their time justifying their budget to stay in existence. I didn't observe any active research going on at all. The researchers had published reports on their findings in scientific journals, but these again seemed to be self-preservation techniques. The reports, like most coming out of industry pursuits, didn't contain much important information and dwelt on areas already well known by workers in the field. This kept the company's name before the public while not blowing the company's shroud of secrecy, and it gave the researchers something concrete to show their

bosses. So I kept looking.

I was next in contact with General Electric, which also was involved in a similar protein project in Arizona. The basic raw materials they were working with were cow manure and offal waste, along with wastes from packing plants and other industries. But, once again, the project had its shortcomings; the real emphasis GE was giving to the project was not to find a cheap protein source, but to find good uses for electric motors in the process. They had found a lot of uses for electric motors, but that seemed to be all they had accomplished.

Finally I got in contact with Dr. Wayne Graham, head of exploratory research at , Quaker Oats Company, who impressed me as being a very sincere and devoted person who wanted to help bring better nutrition to the people of the Third World. He was behind Quaker's whole-grain cereal production in South America, and had done a tremendous amount of work in the area. Now he was about to retire, but he still wanted to see Quaker's protein research projects carried forward. He had hired a protégé, Dr. Walter Clark, to supervise the projects in this area. Quaker had the money and the facilities necessary for this work, and they had very capable people in their various departments to lend support. Since I had the background and specific information from the Tenneco project, they thought that I would fit in very well. I was hired, and went to work at the company's research facilities in Barrington, Illinois in March of 1970.

The Quaker Oats research laboratory is a large, awe-inspiring brick building, and I was immediately impressed by its elegance. It was built in stages during the 1950s and 1960s, and from the stylish landscaping on the outside, through the marble-lined foyer and hallways, to the shining ultramodern equipment in the laboratories themselves, the place breathed class. Quaker never spared any expense in getting the best people or the most up-to-date equipment, and the opulence of their facilities was impressive. An example of this is the separate facilities they had for testing pet foods in the 1970s. The building is a huge southern-style mansion, complete with columns. The air-conditioned kennels and laboratories cost millions, and I'm sure no ghetto child ever enjoyed accommodations as plush as the ones the dogs at Quaker have. I couldn't imagine spending that kind of money to test dog food, but of course a lot of it was for public relations effect, to show animal lovers that, far from abusing the test animals, the dogs and cats were being luxuriously pampered.

As impressive as Quaker's research laboratory is, it is hardly unusual in the food industry. General Foods spends more than \$100 million on new-product research every year. According to Robert Carbonnell, vice-president of Standard Brands, "Research has become responsible for corporate growth." <sup>1</sup> I was soon to learn the questionable nature of all that research.

The first part of my job at Quaker was to draw up specifications for the equipment I would need to continue the work I had started at Tenneco. With the orders for the equipment placed, there would be a lapse of time before the materials arrived and could be set up, so the company put me to work at various odd jobs to fill the gap.

The first of these tasks was inspecting pizza. Quaker had just acquired the Celeste Rzza Company in Chicago, and they put me to work checking for salmonella in the pizzas. I began to find salmonella infestations in about one out of every two pizzas I checked. So I went with the inspection team into the shiny new plant where the pizzas were being made and gave the facilities a complete check. We tested the doorknobs, the sewer drains, the refrigeration units, the conveyors, the shredders, the meat grinders, and every other surface and piece of equipment. After going through everything, we could not find the source of the contaminant. To our surprise, the source of the salmonella was the pork — USDA inspected, Grade A pork.

We checked our supplier, and found that many samples of pork we checked had some degree of salmonella. We went to a supermarket, and discovered that about 30% of the samples there were infected. By this time I was beginning to have serious doubts about our salmonella detection program. If all of this pork had salmonella in it, why wasn't there an enormous epidemic of food poisoning? The USDA was claiming that this was the most serious health risk in the food industry, yet salmonella seemed to be ubiquitous and almost harmless. The fact is that salmonella is virtually inherent to meats like pork, lamb and chicken, and there's just no effective way to remove it.

Due to the ways we cook these meats, salmonella presents no real danger to a healthy person. But the USDA has decided that our food must be nearly sterile, so they put out a barrage of hype about the dangers of salmonella infection. In order to solve its problem, Quaker ended up having to buy whole fresh hams, wash them in a chemical preservative solution and then grind them up into sausage, adding substantially to both the cost of production and to the price of a Celeste Pizza. The USDA salmonella scare is basically a game; it keeps a lot of people employed running tests and publishing reports, but it doesn't make much difference.

But there are instances of gross contamination that do matter, and often they go completely unnoticed.

While I was at Quaker in the 1970s, they decided to come out with a new breakfast cereal they were going to call King Vitamin (despite the healthy-sounding name, the stuff was mostly sugar and fat.) They had encouraging results from their test marketing in the Midwest, so they tooled up three of their plants to begin production on a national scale. They produced King Vitamin at an incredible rate, and shipped the cereal by rail from the three factories to one major warehouse.

It happened that one of the railroads sent a freshly-painted boxcar to one of the cereal factories. When the workers at the plant opened the boxcar, the fumes were so strong that they brought in blower fans for ventilation and went right ahead and loaded the King Vitamin into the boxcar. The cereal went to the warehouse and was mixed with all the rest of the stockpiled cereal that had been produced over the last three months. When the time for the big roll-out came, and Quaker had spent two million dollars in advertising, promotions and shelf-space pay-off, a trickle of complaints came in from customers who wondered how Quaker could call this stinking, inedible stuff 'food'!

The company checked its supply and, sure enough, that wasn't the way it was supposed to taste at all! Quaker's analytical laboratory, perhaps the most sophisticated privately owned lab in the world, began the huge task of tracing every supplier of every ingredient and every process that went into making King Vitamin and shipping it to the warehouse. After a massive search, somebody found the shipping receipt that stated that one boxcar had been freshly painted. Because there was no way of telling which boxes of cereal were contaminated and which weren't, Quaker had to recall them all from the shelves and dispose of them. All in all, the company lost around \$5 million on this one little mistake. But regardless of the magnitude of the problem, the news of the contamination never made the papers; if I didn't have a friend working in the analytical laboratory, I would never have found out about it myself, even though I worked just one floor below the analytical department.

Quaker did take action to make sure this kind of food would not be made again; they added one line to their voluminous rule book for employees, admonishing them not to load cereal into freshly painted boxcars.

When I thought about this affair, a question began to bother me. How in the world could a company afford to lose \$5 million in one year on one product without blinking an eye? It seemed to me that a company making that kind of mistake even sporadically would suffer a big crimp in its ability to stay in business. But later I found two reasons why a multimillion-dollar loss was no big problem to

the Quaker people. First, the loss could be made up by raising the prices on the myriad other products they market, a few cents increase on every one; the cereals cost so little to make because the boxes contain so little grain; and their competition was making mistakes equal or worse in magnitude. It is a sad example of how entrenched the major Food Giants are in our economy that they can afford to make this kind of costly mistake and still rake in enormous profits. But the really sad thing is that if the contamination had been less noticeable than the smell of paint, nobody, from Quaker to the consumer to the mighty USDA itself, would ever have discovered it.

Even if Quaker had known about the contaminants beforehand, one would have good reason to question whether they would have done anything about it. Quaker has information that some of their breakfast cereals are harmful even without adulteration; their own studies prove it!

While I was doing research on my project in Quaker's library, I came across a little flyer that the company had published in 1942. It contained a report on a study in which four sets of rats were given special diets. One group received plain whole-wheat kernels, water, vitamins and minerals. Another group received Puffed Wheat, water, and the same nutrient solution. A third set was given water and white sugar, and a fourth given nothing but water and the chemical nutrients. The rats which received the whole wheat lived more than a year on the diet. The rats who got nothing but water and vitamins lived for about eight weeks, and the animals on a white sugar and water diet lived for a month. But Quaker's own laboratory study showed that rats given vitamins, water and all the Puffed Wheat they wanted died in two weeks. It wasn't a matter of the rats dying of malnutrition; results like these suggested that there was something actually toxic about the Puffed Wheat itself. Proteins are very similar to certain toxins in molecular structure, and the puffing process of putting the grain under 1500 pounds-per-square-inch of pressure, and then releasing it, may produce chemical changes which turn a nutritious grain into a poisonous substance. And Quaker has known about this toxicity since 1942.

I was shocked, so I showed the report to Dr. Clark, who shared my concern. His predecessor, Dr. Graham, had published the report, and begged the company not to continue producing Puffed Wheat because of its poisonous effect on animals.

Dr. Clark was so upset about finding a report like this in the company's own literature that he went right to the president of the company, Robert D. Stuart III. "I know people should throw it on brides and grooms at weddings," Stuart cracked, "but if they insist on sticking it in their mouth, can I help it? Besides, we made \$9 million on the stuff last year." That's a direct quote! I could hardly believe my ears when Dr. Clark told me the president's word, but I was soon informed that the situation was not important, and that I had better keep my nose in my own business and not worry about what was going on in the rest of the company.

Since the publication of the first edition of this book, the Quaker Oats Company hotly denied that this study existed. I have little doubt that the study no longer exists, but I still maintain that I saw it then with my own eyes. Furthermore, published studies confirm that the process of puffing any grain gives the product a negative nutritional value. I have repeated similar tests with white rats, and have found that rats on a diet Puffed Wheat do worse than animals eating nothing at all. Yet despite the fact that Quaker has done its best to discredit me and intimidate members of the media interested in my message, it has yet to demonstrate that its puffed cereals can support life of any kind. To me, making food for another is a sacred duty. Whether you are helping to feed one person or a million, feeding another is a calling. It shouldn't be reduced to the normal parameters of running a business — how can I make an extra buck off this customer. Food companies should treat their customers as if they were their own children and as if they were their god— never offend or do them harm else they will destroy you.

Food companies should treat their customers as if they were their parents. You would never want to do anything that would ever harm your parents in any way— after all, they gave you life — the greatest gift of all.

Quaker doesn't do animal feeding studies on most of its human products anymore, because too often these tests show their "foods" are incapable of sustaining life. This is also why, despite Quaker's lavish facilities for testing pet food, not a single dollar is spent to find out if Quaker products are really good for human beings. Why, they figure, should they waste money on tests that are just going to tell them things they don't want to know? In reality, most of Quaker's research efforts are aimed not at finding new products or improving the old ones, but in cutting the cost of production. In corporate lingo, it's called "product differentiation" and in advertisements they call the product "new and improved." The result is a cheaper, less nutritious product that costs the consumer more.

Every employee in the building was expected to participate in this differentiation process by taking part in taste tests that would take place several times a day. Each employee would be called by name to the testing laboratory several times a week and asked to sample product "A" and compare it to product "B." The first product would be, for instance, a bowl of Cap'n Crunch cereal; the second would be Cap'n Crunch made by a new process that would cut the cost of production by a tenth of a cent per pound. The object was to tell if we could notice any difference between the old product and the cheaper version. If the researchers, executives, secretaries couldn't tell the difference, as was usually the case, the company assumed the public would be fooled as well, and Cap'n Crunch would henceforth be made the cheaper way. In several months, when the researchers had found an even cheaper way to make the cereal, another taste test would be performed, and if the results showed "no discernible difference," a few tenths of a cent more were cut from production costs. This went on and on, with almost every product being altered once or several times a year. Of course, even though the harried testers couldn't notice the difference between "A" and "B," there was always a slight difference; and after the end of several years and many changes, the taste and nutritional value of the new product bore little resemblance to the taste of the original stuff.

This taste-panel activity takes up a lot of the researcher's time and attention. Sometimes I would be called away from my work three or four times a day to taste new foods. But the company absolutely insisted that the employees participate, so one often felt the tests were the only constructive thing one could get accomplished all day! We would even test out the dog food to see if its color and texture were attractive to humans. Computers and analysts would endeavor to make sure that all the tests were objective and accurate, even going as far as making sure a test was not biased by which product was called "A" and which was labeled "B." Yet, for all this concern over taste, not a single study was done to determine how the foods affected the health of humans or even whether they were safe to eat.

An example of this product differentiation and cost cutting in action is the process used for making cereals which are shaped like little O's, crowns, moons and the like. The machine used for making shaped cereals, called an extruder, is huge pump with a die at one end. The ingredients are mixed together into a thick soup called a slurry. The slurry goes into the extruder, is heated to a very high temperature and pushed through the die at high pressure. A spinning blade slice off each little crown or elephant, which carried on a stream of hot air past nozzle which spray a coating of oil and sugar on each piece, to seal off the cereal from the ravages of milk and give it crunch. This extrusion process, besides creating a sweet crunchy cereal, destroys much of the nutrient content of the ingredients. Even the chemical vitamins, added before the extrusion process, are damaged by it. The amino acid lysine, a crucial amino acid, is especially ravaged by extrusion. Yet the only changes made in the dozens of variables in the extrusion process are those which will cut costs or increase sale regardless of how these changes will alt the nutritive value of the product.

As James Hightower puts it in his book, "Eat Your Heart Out," "It is not that food firms are trying to produce bad food. Rather, they are not trying to produce good food."<sup>2</sup> What they are trying to produce is profits, and they have learned that in order to expand their markets, in order to keep growing and commanding a bigger share of the market, they must process and sweeten, process and add salt, process and add color dyes and flavor chemicals. Processed foods are more profitable for a variety of reasons; with much of the food value removed and dozens of preservatives added, processed foods last practically forever. When flavors, colors, texture, indeed when the food itself is synthesized, the corporations are freed from dealing with the cost and bother of real foods like vegetables and fruit. Most importantly, the foods can be designed to hit "consumer hot buttons," industry lingo for the real or imagined needs of the public.

The priority of shelf-life is clearly one of the industry's most vital. It is not at all unusual for the freshness codes on food packages to brag that the product inside will still be in "best" condition almost a year after it arrives in the store. A recent Progressive article reported that food "engineers" at the Campbell Soup Company are working on a process to keep their foods "fresh" for two or three years!<sup>3</sup> On the surface this may seem quite an achievement, but on reflection it is clear that these long-lived foods are not really fresh. They have merely been doctored in one or two ways: Either they have been loaded with preservatives, more accurately poisons that ward off the growth of microorganisms, or the nutritive content of the food has been depleted to the point where no microbes could live on it. This would be a shining scientific accomplishment, as the Food Giants insist it is, if it were not for the fact that the microbes are after the same things in the food that your body utilizes when you eat. In fact, many of these microbes resemble those in your digestive tract. If these "bugs" can't live on the stuff, it is a good indication that you will not be getting the proper nutrition from it either. This, of course, does not enter the minds of the executives who order such research and effect such changes in the production of our daily bread.

What matters to them is that they will be able to stockpile when commodity prices are cheap and have their stock last long enough to get them through times of higher prices; that the company can centralize its location and ship processed foods from one spot to all parts of the nation and every corner of the world; and that grocers love a product that lasts a year and turn down foods that have to be disposed of in a couple of days or weeks. It is particularly ironic that so many Food Giants love to brag about their "freshness" in advertisements. They have assumed that, if they can make a bread that stays soft and white for a week on the shelf, that entitles them to proclaim the bread's everlasting freshness. If the Food Giants can put out canned corn that is firm and brightly colored, they may name the brand "Freshlike." The FDA under David Kessler put a stop to many of the abuses of the word fresh and made spaghetti and orange juice companies take the word "fresh" off their products in 1992.

The truth is that 80% of the food in a supermarket is stale. Thank goodness for the fresh foods that they do contain. Sadly, food companies have duped the consumer into believing that if a food has the same color or texture it had when it came out of the oven or off the tree, then it is indeed fresh. But common sense tells us that a food's real freshness depends on how much of its original food value and quality have deteriorated since the time of harvest or baking. Of course, the Food Giants have sidestepped this issue entirely. They remove any food value present.

Naturally, the next logical step from such radical adulteration of the bounty of the earth is to fix things so that you can bypass Mother Nature (and the farmers trying to make a living tending her) entirely. According to the United States General Accounting Office, almost 80% of the additives in foods are cosmetic.<sup>4</sup> Instead of the bright yellow color and tangy-sour taste of lemonade, we get sugar and artificial flavoring; instead of the deep ebony color and rich dark flavor of real chocolate pudding, we get cotton-based synthetics; instead of creamy milk and smooth ice cream in our shakes, we get sodium caseinate and fat solids. An ever-increasing proportion of the food we eat is

no longer even food but is now a conglomerate of high-priced chemistry experiments designed to simulate food. There are even chemicals like International Multifood's Merlinex, described by Hightower as "the silly putty of the food world," which takes the place of the real thing in everything from cheese to brownies.<sup>5</sup> In the words of Albert Clausi, vice-president at General Foods, "In my business, commodity is sort of a bad word," — commodity meaning fresh, real food!

6

With the twin bugbears of raw materials and product longevity out of the way, the Food Giants are in the position to design their foods, to make exactly what the consumer wants, exactly the way she wants it. The food companies spend millions in surveys and laboratory research to divine the "consumer hot buttons" and millions more in development research to exploit what they perceive to be the needs of the people. Boil-in-bag glop, gravy that comes in a stick, cheese-flavored tort in a hermetically sealed plastic cup, vegetable oil in a spray can, and dozens of other such freakish fares are the end result of the company's concern for your eating habits. Margarine, the ultimate in created foods, is composed of diacetyl, isopropyl and stearyl citrates, sodium benzoate, benzoic or citric acid, diglycerides and monoglycerides, and loaded with trans fats. Trans fats are created during the hydrogenation process. Harvard School of Public Health recently published in a prestigious British medical journal that four servings of white bread, cake or cookies that contain "partially hydrogenated fats" can increase the chances of heart trouble by 67% or, 2 1/2 pats of margarine can increase the chance of heart trouble by 100%.<sup>7</sup> Margarine has been on the market for 81 years. For the first time, it has finally been tested on human beings. People that have heart trouble should sue the margarine companies. The taste may say butter, but the ingredients say junk.

The ability to invent, mass produce and advertise these food monsters allows the Food Giants to obliterate their competition. As they become more able to preserve their products and ship them to every supermarket in the country, and as they continue to diversify their product lines, they are in a position to put smaller farmers and food producers out of business. What local potato chip concern could hope to match Procter and Gamble's huge advertising budget for Pringles? Very few, so the consumer may be more aware of a product shipped from across the country than he is of the same product that's been produced across town for decades. As if the disparity in resources were not enough of a blow to small producers, the Food Giants make it a standard procedure to underprice products they wish to bring into a new area in an attempt to drive the local boys out of business. Of course the price doesn't stay down very long after the competition is out of the way, but the ol' one-two punch of mass promotion and price fixing has won another round for the Food Giant involved. The result? Despite the plethora of brand names that are still on the grocer's shelves, a mere 50 companies control 64% of the nation's \$800 billion-a-year food market. The executives of a Food Giant may brag to their stockholders that their ultimate sales goal is to be number one, but their real competition worries have been eliminated. Naturally they can blow \$5 million on a lousy tainted cereal; when your sales are in the billions, who cares?

Of course, even a multimillion-dollar advertising campaign is insufficient to convince the consumer that some of the chemical-and sugar-filled glop the Food Giants produce actually tastes like real food! The Food Giants realize this, but they have found an interesting ploy to distract the consumer from the horrible taste and worse nutritional value of their products. When was the last time you saw a cake mix advertised on the basis of its natural taste or wholesome ingredients?

Instead, we are assured that the cake is "super-moist," as though water and fat content were the real hallmark of a good cake. Catsup producers have long given up the hope of convincing you that their brand tastes more like tomatoes than brand "X," but they go all out to sell you on the fact that their catsup takes more time to drip down an inclined plane than the competitor's. Fast-food chains have nearly abandoned using descriptions of their food in advertisements. Now chains like McDonald's and Burger King fill their ads with clowns, puppets, NinjaTurtles, jingles and magic. What they are

trying to market is fun, not food.

All of the above are examples of how the Food Giants, having discovered that they can no longer sell the quality of their products, are trying to change the criteria upon which people base their food choices. One would hope that consumers could see right through such ploys. Unfortunately, the Food Giants have discovered to their glee that people can be made to care more about Ronald McDonald than about eating a good meal. Is it any wonder, then, that the consumers have been trained to happily stuff themselves with billions of dollars worth of poison each year?

If the food engineers were ignorant of what they were doing, uneducated in the effects of vitamin-destroying heat and pressure on food or the physical damage caused by megadoses of sugar and chemicals, they might be forgiven, if not excused. But the majority are like Dr. Nesheim, who was then director of new research and vice-president for scientific development at Quaker. He is a robust and healthy individual, and you can tell by looking at him that he puts the principles of good diet to practice in his own life. But I once asked Dr. Nesheim what he thought of the nutritional content of some of the foods Quaker produced. He laughed nervously and asked, "How do you define nutrition?" It is just as hard to make waves in the food industry as anywhere else, and the junk-food mongers are not the only people giving out good jobs and promotions to biochemists. So the people who should know better play along.

One of the more bizarre projects that went on during my term of employment at Quaker will illustrate what the corporation's true priorities are, as well as the great lengths to which the company will go to keep what it considers its really important work "top secret."

This project was going on in the packaging department, and the Pentagon would have been impressed by the security measures that veiled it. No outside employees were allowed in any of the rooms in which the project was taking place, and if you happen to bungle into one of the secret chambers, even by mistake, you could be fired on the spot. When the packaging people went on coffee breaks they were not allowed to fraternize with anyone else in the building. This went on for months, and it wasn't until almost a year after I left Quaker that I found out what the all-important, top secret project actually was. They were trying to put a flip top on cereal boxes! The researchers ran the box through a battery of tests: They jostled the boxes in mechanical jostlers to see how the box would survive shipping; they put the boxes in coolers and ovens to judge the effects of temperature variation; they opened, resealed, opened, resealed, opened and resealed them. It was quite obvious to me that they cared an awful lot more about how the box would perform than how the stuff inside was going to perform in people's bodies.

One of the projects I worked on at Quaker was the development of a soy protein snack bar. The idea was to design a product so that two of these bars would provide a person with all the protein he or she would need for breakfast. After very little work we found that it was easy to make a good tasting, nutritional breakfast bar. After I worked on the bars, they were so filling and satisfying, a person couldn't finish more than one at a meal. This meant that a box of breakfast bars might last a family a week. That would be bad for sales. The project was dropped immediately. It was determined that people would not buy enough of the product to generate the large profit margin Quaker wanted. They wanted a cheap product that would have phenomenal sales.

I call this attitude, which pervades the food industry, the Conspiracy of the Sales Curve: What sells the best determines what will be produced and how it will be marketed. That's true for all industries, of course, but making sales increases the top priority is especially dangerous in the food industry. If a product were to taste, smell or look bad, or if it were especially inconvenient to prepare, people would stop buying it and the company would eventually stop making it. Consequently, these products seldom reach the production stage, much less the grocer's shelves. But if any product were

changed to provide a good source of nutrition and was satisfying enough to "stick to your ribs," the sales curve might also show decreased consumption of the product; people just wouldn't have to eat as much of the stuff to be full. This would be judged by the company to be a bad change, and if such a healthful change were to make it into production, it would not last long. An example of this is Kellogg's Concentrate (made in the 1970s), one of the best breakfast cereals Kellogg's or anyone else ever produced. It contained an unusually high proportion of protein and other nutrients and was very filling, which was one of the reasons it sold in such a small box. And precisely because people didn't have to buy as much as, say, Sugar Pops, the product was taken out of production.

Unfortunately, the consumer is playing right into this con game. He's like the guy at the carnival who gets pies thrown at him for a living: He just stands there and takes it. Let's assume a person is used to having one bowl of corn flakes for breakfast. One morning he tries a new cereal, perhaps corn flakes coated with sugar. Because this processed sweetener stimulates his appetite (I explain how this works in Chapter 4), he finds himself eating two or three bowls. "Wow," he tells himself, "this stuff is really good — I can't stop eating it!" While he's actually getting more empty calories and fewer healthful proteins and complex carbohydrates, he thinks that he's found a better breakfast cereal. "You can't eat just one" is, unfortunately, more than just a sales pitch. It is the watchword for how the Conspiracy of the Sales Curve is starving the American people.

I don't mean to suggest that this is an overt conspiracy or that there are memos floating around the offices of food company executives that read, "Make the stuff less nutritional so it will sell more." In fact, there are probably not many people in the food industry who realize what is happening. The people in the industry think they have the best intentions in the world: to make what the people want to eat. And if the people buy more of a product they've tinkered with, they're gratified; they think, "We've done the American public a favor." Researchers are praised and promoted when they make changes that improve the sales of the product, and with alarming frequency those changes amount to adding sugar, fat and appetite stimulants and processing out fiber and nutrients. It is the most costly form of "planned obsolescence"—it's taking place in your own bloodstream. It's making your body fat and obsolescent.

I don't want you to get the idea that Quaker Oats is the only food manufacturer that is involved in pushing nutritionally worthless foods. As a matter of fact, despite all the shoddy practices I witnessed while at Quaker, I learned that the other breakfast food companies were even worse! At least Quaker was making some attempt, if only a half-hearted one, to produce some nutritional foods like Oat Bran. But the others—Kellogg's, General Mills and the rest — had long ago given up on making anything but fast-selling junk. Quaker's Oat Bran really does help people lower their serum cholesterol. It just isn't the miracle food their promotion department made it seem.

The Quaker Oats Company moved me to the small town of Manitowoc, Wisconsin, where a local grain-malting research plant had the right kind of pilot-plant facilities for continuing my work of making a nutritional product from the waste materials resulting from making rolled oats. My distance from the rest of the company allowed me to work where I didn't have to waste my time taste-testing and where I could still nourish the naive hope that my work was leading to better nutrition for the consumer. I continually wrote reports on my work and its possible applications but the company didn't respond. Finally I made an appointment to meet with some of my overseers in Barrington with another one of my detailed reports on making protein concentrate. I walked into the meeting room and handed copies of the report around to the gentlemen gathered there. They didn't even look at my report this time.

"Paul," Dr. Bob Jones began, "we want to get down to brass tacks."

What was he talking about? I thought I always had been down to brass tacks. My research had been

innovative and productive, and I had gone out of my way to make my reports informative and free from fluff and hyperbole. But I was refusing to play along, refusing to become another worshipper of the almighty Sales Curve, and as a result the devotees in their executive offices had little use for my research results. I didn't have all of this conceptualized at that point; I just sat there while another man in a pinstriped suit was telling me that my promising project was being cancelled, and that I was out of a job.

"With your attitudes," he said, "I'm sure you'll never work in the food industry again." They blackballed me and I couldn't even get a job interview in the food industry for the next three years.

Although my fellow employees at Quaker felt sorry for me that I had lost my job, they were generally of the opinion that my hopes of getting the industry to produce nutritious foods were "pie in the sky." I was beginning to have some apprehensions also. It was a rather depressing thought that the only way I could make a living in the food business was to develop worthless foods, foods that I couldn't let my children eat. My prospects were appearing gloomier all the time, and, as I drew my last pay in the early autumn of 1972,<sup>1</sup> I was seriously wondering whether I ought to abandon my dreams of saving the world and join the corporate fold. I had three children at home, and though our house was paid for I didn't have the slightest idea what I would do to earn money to feed and clothe my family.

Yet I still had two things going in my favor. Since both Tenneco and Quaker had abandoned the protein processes I had developed for them, I had the right under patent law to perfect the design and obtain the rights to it for my own use and profit. And I still had my do-good attitudes and a lot of brash confidence in myself and my dreams. So I decided I would give the thing one more try. If Tenneco and Quaker were too impatient and profit-hungry to market a cheap, nutritious foodstuff, I would do it myself, working alone in my basement, while looking for a job. If I couldn't get a job, then I would market the process on my own. Surely some corporation, somewhere, would believe in my work if I could convince them of its worth. So, with nothing but my personal savings accounts to work with, I set out to fine-tune my research into a patentable process.

This presented several problems. Because I wasn't associated with any research outfit or university, I was eligible for none of the usual grants. My wife had to be dismayed that our recent prosperity had been shot down the tubes while I pursued a seemingly impossible dream, but she knew she couldn't talk me out of it, so she understandingly didn't try. The situation was perhaps toughest on my three children, who were then ages 5, 7 and 9. Other kids could brag about their daddies being policemen or machinists or store clerks; but it's pretty hard to explain to a 7-year-old that you're synthesizing single-celled protein from industrial waste, so what could my children say? The best they could come up with was, "My daddy works in the basement."

Luckily it didn't take me too long to put the finishing touches on another version of my protein fermentation process, this time based on whey, the cheese byproduct that is as hard on the lakes and streams it's dumped into as it is on the waste-disposal budgets of the dairy manufacturers. When I had the last bugs worked out and detailed plans for industrial use drawn up, I went to Washington, D.C. and hired a patent attorney to file claims in the United States and Canada patent offices. I knew nothing about the legalese or jargon required in a patent application, so I looked up another patent for a similar process and just made the changes necessary to adapt it to the details of my own work. It worked out well, but it turned out that my process was a little too similar to the other for the liking of the guy who held the patent on it, and my lawyer was drawn into an extended debate with the patent office to prove that my process was significantly different enough to allow a new patent to be issued on it. We won, but not before the legal fees had put a severe drain on my already dwindling resources. When the patent came through in the summer of 1973,<sup>1</sup> I had doubts as to whether my funds would last long enough to make it pay off.

I continued my laboratory work, though, and when I had produced a large enough sample of the whey protein I sent it to the Wisconsin Alumni Research Foundation in Madison, Wisconsin, for nutritional testing. The institute does testing for many of the major food corporations, but since I was an alumnus they offered to do the complicated task of nutritional analysis for me free of charge. As if this weren't enough luck, I met and got to know Dr. Elizabeth McCoy, an internationally acclaimed bacteriologist at the University of Wisconsin, who had been doing doctoral work in her laboratories. She was also a very wealthy person, due to fortuitous inheritances and wise investments, and she made a practice of helping independent researchers who were doing important work. Dr. McCoy graciously offered her assistance, and I eagerly accepted.

About this time I was anxious to see my newly patented process put to good use, so I travelled to New York to meet with Edward Juhls, then head of the United Nations Food and Agriculture Organization's protein division. He was also in charge of protein distribution for several other UN organizations, and I was told by the people I contacted at the UN that he was the man to see. I explained my process for making protein out of various waste products, showed him how fundamentally simple and inexpensive it was, and enthusiastically told him that my process would allow people in under-developed areas of the world to make all the protein they needed for themselves. But Juhls explained to me that, as good as my plan sounded, there was really nothing he could do about it; the United Nations has no resources for buying food or building plants, he said, but merely serves as a distribution center for food and tools donated by various nations and organizations. "Now then," he said, "if you could donate a supply of the product, we could surely find some use for it..." Of course, there was no way I could do that. I was unemployed, with a family to support and a dwindling bank account. For all my grand hopes and good intentions, I had accomplished nothing except to spend a few more of my disappearing dollars on train fare.

I had one last hope: to manufacture the stuff myself, on an actual industrial scale, and then either sell the protein or the process. Dr. McCoy agreed to put up the financial backing, and the White Clover Dairy in Hollandtown, Wisconsin agreed to furnish the whey and let me set up my equipment on their premises. In fact, the owners of White Clover Dairy were very enthusiastic, and hoped I could develop the process enough to build a plant; they would rather give the whey to me than pay to have it disposed of. I drew up specifications, ordered the necessary material, had the needed equipment built and in a few months I was in production.

I do not want to give the impression that this was a surething proposition. There is a great deal of difference between working with small amounts of relatively pure ingredients in a laboratory and dealing with huge quantities of whey in the less-controllable atmosphere of a cheese factory, especially when delicate microorganisms are involved. The whey had to be monitored constantly, because it varied greatly in both quality and in the pollutants it contained. One load might be contaminated with antibiotics, the next with pesticides, the next with fecal matter. But the strain of microbes I was working with proved to be hardier than I suspected, and withstood the fluctuating conditions of the real world as well as they had survived in the laboratory. The real problems were with the machinery; much of it was custom-designed, and several modifications had to be made before it would work evenly and properly. I spent many a long night baby-sitting my contraptions, but before long the equipment was turning out protein by the pound.

I had to come up with a snappy name for my product, one that would have some sales appeal to it — I couldn't call it "dead yeast." I christened the stuff Royal Protein Flour, and in the summer of 1971 began the arduous task of contacting food companies to find out if any of them could use the high-protein supplement in their products. The names of the corporations I got in touch with will be familiar to anyone who shops in supermarkets or watches TV commercials: Nabisco Food Company of New York, Procter and Gamble (I wondered if they could use it in Pringles), Pillsbury, Beechnut

Baby Foods, Crescent Baking Company, Johnson Food Company in Milwaukee, Adams Snak Food Company in Beloit, Rippin' Good Cookie Company in Ripon, Geyser Potato Chip Company, and many others. I tried almost every major and minor food company I could find, and everywhere I got the same reply: "Well, we'll think about it and get back to you." Whether they ever thought about it or not, they never did get back to me.

By the spring of 1975, it had become obvious to me that there was no way I could continue my work. I had contacted hundreds of people and had gotten no positive responses anywhere. My money was gone, yet I couldn't bring myself to ask Dr. McCoy for financial support for my family. My hopes of doing anything with this protein miracle had been completely dashed. It looked like I wouldn't be able to feed myself, much less the starving millions of the world. By April, I was down to my last \$10,000 treasury bond, and I didn't have the slightest idea what to do next.

## NOTES

1. Daniel Zwerdling, "The Food Monsters," *Progressive*. March, 1980, p. 22.
2. Jim Hightower, *Eat Your Heart Out: Food Profiteering in America* (New York: Crown Publishers, Inc. 1975), p. 74.
3. Zwerdling, *op. cit.*
4. Zwerdling, *op. cit.*
5. Hightower, p. 106.
6. Zwerdling, *op. cit.*

## 3. EXPERIMENT

During the period after I left Quaker, while I was spending lonely hours doing research in the solitude of my basement, I began to give some serious thought to the twists and turns my career had taken so far. It was at this point that some things became clear to me. All the times I was ignored while I was involved in the food industry, attempting to sell my protein process and trying to promote nutritional foods, seemed to be frustrating setbacks. But while I was in the thick of things, I couldn't see the major forces at work, and I assumed that eventually I would be able to overcome corporate inertia and that someone would see the merits of my idea. In the reflective clarity of my unemployment, however, I realized that there was no receptive audience in the food industry, and there never would be.

I understood that all my experiences with food, from gathering eggs on my father's farm to growing microbes in my basement, were unified by a basic realization: It isn't a shortage of food that causes mass starvation, nor too much food that causes mass obesity. Our problems belong not to food itself, as I had assumed all those years, but to the attitudes people have about food, and how those attitudes are influenced and manipulated.

I recalled how my friends' fetish for huge "farm" meals and lots of sweets brought them weight problems and hypoglycemia, and how snacking in the American tradition had caused appearance and health problems for my friends. I remembered the South American peoples who loved Western junk foods so much that they spent what little money they had on it and were starving because of it. My mind broiled again with the fresher memories of the Food Giants themselves, and how they were running the food industry as if they were running the automobile or oil industries, caring about nutrition only as a public-relations gimmick, if at all.

And I saw at last that good, whole foods and healthful eating habits had been available to everyone all the time. It was only our own misconceptions about food, fueled by the opportunistic propaganda of the food monsters we were foolish enough to believe, that led us to think of food as sweet-tasting stuff that has no effect at all on our health, our emotions, or our view of ourselves and

one another.

We had allowed the Food Giants to take edible and nutritious plants and animals that our species has thrived upon for millennia, and turn them into weapons of financial conquest. Every time an African infant succumbs to world hunger or an American working man surrenders to a heart attack, the Food Giants have claimed another victim. And it is nothing but the naivete, the total lack of food consciousness of the world's people that keeps this sword of death, disfigurement and disease in the hands of the Food Giants.

We could not, I knew, wait for the food companies to change, nor for the government to fight the battle. The people of the world will not get wise enough to stop consuming junk food until they learn what food is supposed to do for the mind and body. Nowadays people are letting agribusiness behemoths abuse their minds and bodies. Only when we get the control of our food supply back in the people's hands will the starving be fed. But the only power, the only weapon that can subdue the Food Giants is the truth. If I really want to help, I told myself, I'd better start spreading the truth.

I got my chance soon enough. One of the radio stations in Manitowoc, WOMT, airs an excellent morning talk show called "Be My Guest." One morning, while I was brooding over my experiences with the Food Giants, I decided to call in and vent my spleen. Once I got on the air, I began to regale the host, Ron Zimmerman, and the radio audience about the merits of buying healthful snacks like fruit and nuts instead of junk foods. I explained that not only are these natural snacks more healthful, but they are actually cheaper than candy and more satisfying, too. I was really half expecting to be chuckled at, but Ron actually seemed interested, and while he played a commercial over the air he asked me who I was and what I did for a living. I explained that I was a currently out-of-work biochemist who specializes in nutrition. Then, quite to my surprise, he asked me if I would like to be on the program as a guest some morning. I gave him an enthusiastic "yes."

I prepared for the show by digging up all of the health and nutrition ideas I had garnered over the months of casual study I had put in while unemployed. I wanted to be prepared, because I really didn't think anybody was going to call in, and I figured I'd have to do plenty of talking to fill up the half hour. Fortunately, and again to my surprise, that wasn't the case at all; I was on the air a very short while before the phone lines were full, and they stayed that way till we went off the air. The questions I fielded put my knowledge of food to the test, too. People seemed fascinated with the ideas I was expounding, and they wanted to know more. What are the merits of this diet compared to that one? What are the effects of additives in food? How much sugar is too much, and what's the difference between different kinds of sweeteners? What about vitamin supplements? What advice could I give to diabetics, heart patients, ulcer sufferers, and others on restricted diets? The questions were varied and seemingly endless. But before I knew it, the half hour was over.

Ron told me that, judging by the number of phone calls we had received, I was one of the most popular guests who had ever appeared on the program and he asked me if I would like to come back again. Sure, I told him; after all, I didn't have anything else to do! More importantly, I began to see another door open for me as if by magic, I had had no idea that I would be so well received; in fact, I wasn't too used to having anybody listen at all to what I had to say about nutrition. But now it seemed so obvious to me that I wondered why I hadn't thought of going directly to the people long before. If the poisoners couldn't be made to change their ways by the light of reason, then their poisoned victims could at least be warned about the dangers lurking behind the brightly-colored labels on the supermarket shelves. After having my do-good hopes nearly dashed in my struggle with the Food Giants, the experience of being so well-received, in a small town, bolstered my dreams and made me eager to carry on the fight.

Over the next few months I was on the "Be My Guest" show several more times, and each time the

response was equally flattering. I did my best to give the listeners the best information I could, and I took advantage of every opportunity to warn them about the hazards of eating the typical American diet. But, as well as I tried to prepare myself, there was always one group of questions I just couldn't answer: Where do you get whole-wheat bread with no preservatives? What store carries nuts that haven't been roasted in oil? Alas, Manitowoc is a small town, and there was no natural-food store for nearly 50 miles in any direction. The people who listened to the show were enthusiastic about the advice I was giving them, but there was just no way they could buy many of the foods I was suggesting they eat.

Ron was commiserating with me on this subject one day. 'You know, Paul," he said, "you should open your own store here. I could do your promotion for you. With the response you've been getting on my show, I'll bet you could make a go of it."

I was hesitant at first. After all, I had only one \$10,000 treasury bond and that wasn't even mature yet; that's not much capital with which to start a business. Besides that, I didn't have the least bit of experience or training in business management or bookkeeping. In short, I wasn't quite as certain about my eventual success as Ron seemed to be. But the idea of starting a health-food store, especially in an area that was so cut off from supplies of wholesome food and nutrition consciousness, held a definite attraction for me. My aim had always been to help people eat better; but now I began to see that I didn't have to go to Asia or South America to find malnourished people. We may not be wasting away to skin-covered bones like the starvation victims I saw in Colombia, but our symptoms of malnutrition were obesity, diabetes, anemia, heart disease and a host of the other afflictions of the so-called "developed" nations. Perhaps I couldn't feed the world, but I could make a start by trying to help my own neighbors avoid our "affluent starvation." I decided I might as well give it a go.

My first problem was getting the cash to buy an inventory of merchandise. I had the bond as collateral, but several of the banks I asked for loans quite frankly didn't think I could make it. The downtown of our city, where I had found a storefront location, was suffering from the usual ailments of the small-city downtown area, and in the early 1970s health foods were looked on as part of a back-to-nature fad that would soon end. One bank told me that I had chosen a poor location. It was right down the street from their new bank! It took a bit of concerted looking before I was able to find a loan officer who was receptive enough to give me a chance at it.

When the store, which I eventually called Natural Market, opened on May 2, 1975, the shelves looked pretty empty. But even with our admittedly limited selection of cheeses and nuts, we managed to turn a profit the first day. We sold \$85 worth of merchandise, and our markup was 20%. Because I and my family were the only employees, we managed to net a whole \$13, which I thought was terrific. Actually, the store was well received from the beginning, and even though the profits may have been no great shakes in comparison to other establishments, it did provide us with an income as well as a source of food.

Best of all, I was calling the shots, and the only products we carried in the store were ones which I had checked out and which I believed were the most healthful and the best quality available. Many times I went right to the producers to make sure that we were getting the freshest and most natural products. Though I knew a lot more about the nutritional value of foods than about salesmanship and marketing techniques, I tried my hand at those aspects, too. If the people who came into the store were unfamiliar with the somewhat exotic dried fruits and nuts, I was quick to hand out samples to show them how good natural foods tasted and to demonstrate that they were a delicious alternative to junk foods. At the same time, I'd try to convince them to eat more natural foods and less processed stuff.

Before long, regular customers would come in with requests for products they had heard about or had seen in health-food stores in other cities. We'd visit these places ourselves to learn more about their operations and to get tips on where to buy the kinds of items we wanted to carry in our store. The store grew by evolving to meet the needs of the people of the area who wanted to buy nutritional foods that the local grocery stores didn't have or refused to stock. Obviously, people wouldn't come to us with requests for the garbage they sold in the supermarkets, so we didn't have to turn anybody away.

One of the keys to the early success of Natural Market was our snack mixes, although they were invented almost by accident. A customer would come in and ask us to mix, say, a quarter-pound each of raisins, sunflower seeds and sesame sticks. We'd gladly do this for people, and sometimes we'd save a little of the mix to try out ourselves. We found to our surprise that mixing these seeds, nuts and fruits produced a synergistic effect; the ingredients together tasted much better than they did by themselves. And since all the ingredients were nutritional, mixing them was a form of "product differentiation" that would be as good for our customers' bodies as it was for our sales figures. We decided to make these mixtures up on our own and package them. We took ideas from the tastes of our customers, and developed the product for nutritional balance and palatability. We checked out the mineral and vitamin content of the various foods, and adjusted the amounts of ingredients to derive the maximum nutritional value. I felt a sly satisfaction that I was using some of the marketing techniques I had learned at Quaker and combining them with my knowledge of nutrition to make foods that tasted great but were still nutritionally sound.

An example of this was one of our first products, "Sunshine Snack Mix," which contained golden raisins, almonds, and roasted and raw sunflower seeds. We knew that raw seeds were more nutritional than roasted seeds, so we put in just enough of the roasted sunflower seeds to give the mix flavor but used mostly the raw seeds for nutrition. Whenever I hear people munching on one of our snack mixes, I imagine it's the sound of the Quaker executives eating their words about nutrition and sales quotas.

These snack mixtures were becoming so popular that people were asking us if we could distribute the snacks to area supermarkets so folks wouldn't have to drive so far to get them. We started distributing packages to other stores in the area, and we soon found that many people who were not at all food-conscious were buying our snacks over junk foods simply because they preferred the taste. I also got word from our customers that these fruit, nut and seed concoctions were becoming standard at parties and gatherings. Because of their satisfying flavor and nutrition, the snacks lasted longer at parties and brought more compliments than the usual chips and dip. Before long, a majority of the nuts and seeds I ordered went into mixtures, and it appeared that our first experimentation with "product differentiation" was successful. I was quite gratified, to say the least. While I was working for the Food Giants, I had garnered a pretty negative view of people's ability to change their own eating habits. Now I was sneaking people in the back door of good eating habits with these healthful, tasty snacks, and I didn't have to starve myself to do it.

As smoothly as our operation seemed to be going, we did run into a major snag; there weren't any good breads available. Most "health" breads that are nationally marketed are little more than white bread with a little molasses and bran added for a rustic color. When I could find a supplier of whole-grain breads at all, the source was inevitably too far away to make selling the bread feasible, let alone profitable. As insoluble as the problem seemed, I couldn't bring myself to let it go. I felt bad, because I realized that bread is the most important part of anyone's diet. With its nearly complete balance of vitamins, complex carbohydrates, fiber and calories, good bread is the staff of life, and a person cannot be adequately fed without it. Yet there were absolutely no alternatives in our area to the soft, white garbage that passed for bread on the supermarket shelves. We also knew that we needed a large variety of breads. People didn't want to eat the same thing day after day, no matter

how nutritious it was. I was vexed. Again, the path seemed to clear itself. In 1976 Manitowoc's small wholesale bakery came up for sale. I was not in a very good position financially, and I certainly had not reached the Easy-Street level of prosperity most small-business-men insist on attaining before they expand their operations. But the temptation to make good, wholesome bread products the way I knew they ought to be made proved very strong indeed. Although I didn't have any more capital than I had the last time I made a financial venture, I did have a lot more collateral to work with, and my credit rating had improved significantly. I decided I would take my chances and buy the place.

At the time I took over operations the bakery was turning out five hundred loaves of bread a day, most of it white bread, and was one of the biggest suppliers of sweet rolls for the city. The first thing I did after taking the place over was to stop the production of sweet rolls altogether and radically change the recipe for white bread. I would have liked to have cut out our production of white bread entirely, but because it was paying the bills I figured it would be impossible to stay in business if I did. So I took the standard white bread recipe that the bakery had been using for years and made some substantial changes in it: high-protein gluten flour replaced the standard bleached stuff; I used soy oil instead of lard; oat flour was added and the amount of sugar cut. Every time we made one of these changes, we came up with a better tasting, more satisfying bread. And every time we made a better bread, our sales decreased. With the improved nutritional value of the product, there was just no way we could get the people to eat more instead of less. Though I was accomplishing my goal of getting people to eat better, it was costing me business, and I knew even without business training that if I didn't expand my marketing area soon I'd lose my shirt.

And there were other problems. As soon as I dropped the sweet rolls from our product line, I became the talk of the town, in negativity. Some people were behaving as though the end of the world had come because they couldn't get their favorite sugar-bombs to go with the morning coffee. It seemed ridiculous to me; after all, there were 15 other stores in town where they could get sweet rolls, so it wasn't as though I was depriving them of their addiction. Unfortunately, some of the bakery's long-time customers became so miffed that they stopped buying our bread as an act of defiance. One of the loan officers at the bank where I borrowed called me personally to suggest that my refusal to make sweet rolls, which he had learned about while trying to order them in a restaurant, was going to ruin my business. I didn't need a clearer demonstration of how a regular diet of sugary junk adversely affects people's behavior; I was answering the angry calls of sweet-roll junkies for weeks! So often was I accosted for my attitude that at one point I was actually hesitant to walk down the street for fear of having to field impromptu derision.

Perhaps I could have avoided this problem by shutting down the bakery and firing the old employees, who also seemed put out by the new recipes and techniques I was trying to effect. But I foolishly assumed that I could gradually reform the bakery from a poison factory into "natural ovens." The resistance I got, from customers as well as employees, was much greater than I had anticipated and could perhaps have been avoided had I started from scratch. I still believed that if I could just hold on long enough I could eventually get things going my way but it was also evident to me that I would have to expand my marketing area or face serious financial problems.

It was difficult in the midst of all these business and financial details to concentrate on meeting the primary goal I had set for myself — to produce a truly high-nutrition bread. I knew that, no matter how improved our white bread recipe had become, white flour is just no nutritional match for whole wheat. But at the same time there was a dearth of knowledge about how to bake whole-wheat bread on a mass-production scale, and all the home remedies we tried to scale up just didn't work out. The conventional wisdom of the baking industry was that whole wheat was a very difficult ingredient to work with, and that it made the bread dough so heavy that the stuff wouldn't rise properly. Most of the manuals I used said that it was impossible to make bread with any more than 50% whole wheat;

they suggested about 10%. We decided to go for the maximum, so we came up with a recipe that used 5% more whole wheat than the book said was possible. It turned out fine. It became the mainstay of our bread production, and I began to take the conventional baking wisdom with a grain of salt.

Encouraged by our success with the "heavy" dough, we began using it for other things too —steak buns, for instance. It seemed that the bolder we became in stretching the boundaries of baking knowledge, the greater our successes were. Finally, one of my head bakers, a health-food enthusiast who distrusted the nay-saying of the manuals, convinced me to try a 100% whole wheat bread. I worked with him on the recipe, which was basically the 55% recipe without any white flour at all, and we were soon expectantly putting our first batch in the ovens. What came out, to my surprise and relief, were the fluffiest, best looking loaves of whole-grain bread I had ever seen. The bread was so nice that I decided to go right ahead and start producing it.

But my initial enthusiasm was soon quashed. All of the next several batches rose nice and high in the pan, and shriveled as soon as they hit the heat of the oven. What emerged from the process was an inch-thick slab of crushed grain that bore almost no resemblance to the beautiful loaves of that triumphant first batch. It appeared that the conventional wisdom was proving more veritable than I had wanted to give it credit for, and that I might have to give up the notion of making the best bread conceivable. But a little experimentation solved the problem. We discovered that the dough did a considerable amount of rising while it was in the oven; if you put the stuff in the oven while the loaves were as big as you'd use for regular bread, the bread would be too weak to withstand the heat of baking, while if you put it in a bit small, your result was those big brown loaves we came up with the first night. That problem solved, we became one of the Midwest's only sources of 100% whole-wheat bread that also had no preservatives and used honey instead of sugar. Within just a few months after taking over the bakery, I was on my way to fulfilling my dreams.

From this point on there was no stopping our innovations, and the majority of them turned out to be successful products. After I had amended our white-bread recipe with the addition of sesame seeds, I began toying with the notion of having whole raw seeds suspended in whole-grain bread. Again, those supposedly in the know were of the opinion that such a dough just wouldn't rise sufficiently. But a test batch using sesame, millet and sunflower seeds suspended in a whole-wheat-and-oat-flour dough turned out exceptionally well; I think my first bite of that bread gave me the greatest high I've ever experienced. I did have a little trouble figuring out what to call the stuff, though. My original name of Bird Seed Bread made my customers inquire if such an expensive loaf of bread was really meant to be fed to the birds! So we changed the name to Sunny Millet Bread, and it's been one of our most popular products ever since, even though now we add ginseng to it and call it Executive Fitness Bread.

Since then I've experimented with many recipes. Some, like our Superman Cookies with bran and high-protein flour, have become favorites of my customers; some, like our bagels and pumpernickel, just never turned out well enough to market. But even with our increasing line of products, there just weren't enough food-conscious people in Manitowoc to make my operation profitable. I was elated that I was finally able to make products that I believed in and knew were good for people. Now all I had to do was find some way to turn out these products without going broke in the process.

I decided to try to get my bread into Kohl's Food Stores, a large and well-received chain of grocery stores in Wisconsin. I started by inquiring at the Kohl's store in Appleton, and had to wait two months for an appointment just to show the managers what my products were like. Realizing that I had better not blow this opportunity, I spent a great deal of time and effort on my sales pitch. When the day finally arrived for my trip to Kohl's headquarters in Milwaukee, I walked into the manager's

office and set my various bags and packages on the table in front of him. Before I could even open my mouth to tell him why they should carry my products, he said, 'We'll take 'em.'

After my experiences of setback and disappointment in the food industry, this receptivity to natural foods came as quite a shock. But on reflection, I could see what was happening in the food chain; people were beginning to ask their retailers for wholesome foods, and the store manager had nowhere to turn. The Food Giants offered him nothing but the same over processed junk, and he had to turn away some of his most vocal customers. We proved to be a godsend to many area supermarkets, and their only concern was that we stay in business. The Kohl's manager warned me not to be overcautious about prices; he had seen other well-meaning natural bakers fold because they were afraid to raise prices to cover costs. People were willing, he told me, to pay a higher price for better bread, and the important thing was not to succumb to debt. The overhead expenses involved in making good bread and distributing it on even a regional basis are enormous, much larger than the cost of peddling white, preservative-laden imitations of bread. Natural baking, though it is the only moral way, is not an easy business to stay in, let alone prosper.

The Kohl's people gave us very strict rules for maintaining quality control and good service to their stores. These were the toughest adjustments I ever had to make; my experiences in the research world had accustomed me to taking my time at things and setting my own hours, and owning my own business hadn't broken me of that habit. But in the baking business, the trucks have to be loaded and on the road before dawn so all the stores that carry our breads have a fresh shipment when they open their doors. Add to this the fact that much of the equipment I had acquired was very old and frequently broke down, and one can see the stress we were under to meet our expanded production requirements and keep our quality and service to the stores up to par.

Due to poor bookkeeping practices, I had no idea how much money I was losing in the course of this rapid expansion, so we kept plodding on. At one point, the bakery had lost \$30,000, which should have thrown a scare into me; but since I didn't know about it at the time it didn't frighten me out of going ahead with my plans. The loss just meant that some of our suppliers would have to wait a little longer to get paid.

We continued to put all of our income back into the operation so that we could expand our product line and service as many people as possible. I feel we have succeeded with this expansion, and we continue to add a new product to our shelves almost every month. This has been made possible in part by the fact that in recent years there have been many more nutritionally sound products available than ever before. Before the early 1970s, there was a negligible amount of health foods available to retailers, but a veritable explosion of new products has occurred since. The quality of these products is improving as well. Health foods got a bad name in the early years of the natural foods movement through its association with fanatics whose concoctions were barely palatable. Today, however, the increasing interest in healthful victuals has generated a cornucopia of delicious foods for which you don't have to "develop" a taste.

My business grew along with the natural foods industry in the '70s. By 1980 the bakery had gone from a minor supplier of a few stores in Manitowoc to the only major provider of truly natural breads for more than 150 stores in Wisconsin and Northern Illinois. This growth would have been impossible if not for the dedication of my customers, who drove for miles in the early days to buy my products, who badgered supermarket managers all over two states into carrying Natural Ovens breads, who have stuck by us even when our pioneering experimentation adversely affected the quality of a few loaves, and most importantly, who spread the word. I have also been aided greatly by the attention I've received from the area news media. I could just as easily have been dismissed by them as a huckster; yet they seemed to sense that there was a story behind my operations, and they showed themselves to be perceptive of my goals and convictions.

In 1980, I published the first edition of this book. I sent a copy to Roy Leonard of WGN Radio in Chicago. He liked the book and had me on his program. He loved my story and really pushed the book. In three weeks' time, I had sold 6,000 copies. The cash saved the bakery, and Roy really let people in Chicago know about Natural Ovens. By 1992, we were serving 1,100 stores in Northern Illinois, Southern Minnesota and nearly all the major cities of Wisconsin.

My philosophy in starting the bakery was to make only nutritional foods and make a living at it. In this respect, I have been successful. My first years weren't profitable enough to get my picture on the cover of Fortune, but my main interest has never been fame or the profit motive. I have demonstrated, to the chagrin of many doubters, that you don't have to sell people junk food to survive in the food business. I have always looked on my business enterprises as another experiment, not too unlike the ones I performed in the laboratories of the Food Giants. The difference is that not only was this experiment successful, but it's actually doing good in making thousands of people healthier and providing jobs for hundreds more.

The story of my decade-long struggle against the Food Giants and their perfidious handiwork has two endings. One of them is happy: I have been able to make a living in the food business in such a way that I'm doing good for others while I'm doing good for myself. I hope my experience will serve as an example that the insane system of food production and distribution in this country is not the only viable way to make a profit, and that personal commitment to promoting healthful food and raising food consciousness can lead to success and fulfillment.

Although my own business ventures have proved to be almost more than one can handle, I take every opportunity to speak at gatherings and conventions and on TV and radio, to give aid and counsel to those who wish to join me in the fight against the corporate poison-mongers who control our food supply. I sincerely believe that a small core of diligent workers committed to the cause of winning back the right to healthful, nourishing food can make a tremendous difference.

But there is a sad, tragic ending to this story as well. Hunger is still needlessly killing tens of thousands of infants throughout the Third World each year. While I once thought that making protein out of chemical wastes could solve this massive problem, I now know that such measures would be a waste of time. What these victims need is not more food, but better food. They need rice, wheat and flax that have not been denuded and destroyed by processing, mother's milk instead of processed formula, and an organized program of nutrition education instead of a million and one Coca-Cola signs.

Medard Gabel and the World Game Laboratory point out in their excellent book, "Ho-Ping: Food for Everyone," that there is more than enough food produced in the world to adequately feed every mouth. They go so far as to make the claim that, if the best current knowledge were employed, enough food to feed the four billion people in the world could be grown in the southern half of Sudan! It is only the western bias, the idea spread throughout the world that one must eat white grain, red meat and drink soda pop to be "civilized," that is responsible for the suffering of the millions of starving people in the world.

It is a myth that there is not enough to go around and that there is no way the Earth can support its exploding population. The truth is that most of the world's food resources are controlled by a handful of greedy people, who deny others the right to grow food for themselves, but try to sell them western-produced junk instead. Gabel and the WGL estimate that if all the arable land on Earth were used properly and sown with foods for human consumption, the Earth could support 60 billion people — almost 15 times our current population! But it is true that there is no way we can feed the world population on Whoppers and Chees-Wiz, let alone nourish it. And whipping up a

chemical protein stew is an unnecessary dodge. Until we stop looking at foods as products to be processed, and start acknowledging around the world that whole foods and good nutrition are the real solutions to hunger, we will continue to have the blood of the starving millions on our hands.

And, of course, no one has been more hurt by the western food bias that we westerners ourselves. We must remember that the Food Giants started doing their evil voodoo on us Americans. If we hadn't bought the idea that eating steak is a sign of class, if we didn't believe that Coke "adds life," if we refused to buy the line that processed sugar is energy food, that Pepsi brings eternal youth, then the Food Giants would never have tried to put over those same lies on the rest of the world. It's too late to do anything about that, and we can only hope the rest of the Earth's people won't be as gullible as we were.

But what we can do is turn our own lives around. We can stop accepting ulcers, heart attacks and cancer as the price for living in a modern society. We can give up the idea that pushbutton technology and assembly-line techniques are the best way to handle the harvest of the earth. We can get off the hyperglycemia — hypoglycemia roller coaster we ride after mealtime before we ride it to our deaths. We can demand whole foods instead of adulterated ones, real foods instead of chemical mimicry. We can vote with our dollars by buying foods for nutrition instead of convenience, taste instead of sex appeal, satisfaction rather than celebrity endorsement. And we can fight to make sure that the government we elect and the industries we support will inform us and work for us instead of deceiving and abusing us. The example we set will undoubtedly revolutionize the eating habits of the entire world.

We must place our emphasis, both at home and abroad, not on just feeding people but on nourishing them. The primary reason for this, as I've mentioned earlier, is that all the denuded white rice and bleached white flour in the world won't nourish the undernourished. But we also waste most of our cropland by growing food for processing and profit. One of the best examples of this is right here in the United States, where it is well-known that our agricultural yields-per-acre are among the highest in the world. But according to USDA figures, our diet of meat and processed food has brought us to the point where we require two-and-one-half acres of land to feed each person for a year. This may not seem like an outrageous amount of land at first, but what do you suppose would happen if we stopped using grain to fatten animals (an inefficient source of protein), if we stopped throwing away the most nutritious elements of our grains and vegetables, if we stopped wasting land on potatoes for Pringles and corn for Sugar Pops?

In a speech I made before the Capon Springs Public Policy Conference in 1977, I outlined the hypothetical results of just such an efficient food management program:

Suppose we take one acre of land and raise mixed species of edible plants using bio-intensive ("scatter") agricultural techniques. We would devote most of the land to such crops as sunflowers, rice, soybeans, wheat, corn, flax and a few fruits and vegetables. We could plant nut trees on any land not suitable for cultivation. Suppose, too, that about a dozen farmers got together and kept pigs and chickens, feeding them on kitchen waste, to produce animal-grade protein to supplement the diet.

Such an arrangement would produce 2,500 pounds of food per acre yearly. Assuming an average protein content of 20%, one acre would yield about 500 pounds of protein a year. In other words, this one acre of land would provide enough protein each year for 10 people. If you make the same calculations for calories, you'll find that 6.25 people can live on the calories from this single acre. Simply put, instead of wasting two-and-one-half acres of land to feed one person for a year, an agricultural program based on sound nutrition could feed a person on one-seventh of an acre!

Now, this is only a theoretical approach, and it doesn't take into account the pitfalls of weather and pests that can have a devastating effect on farming. You may disagree with my figures, as did several people at the Capon Springs conference. But even if I'm off in my calculations by 200% (which I doubt), you can see that a sane food program could feed five times the number of people we feed today. And we could feed them a nutritional, healthful diet. I can think of no better argument for doing away with the Food Giants and taking food matters into our own hands.

Fortunately, the movement to achieve this revolution in the food industry is already under way. What started in the 1950s and 1960s as a cult has grown to become an increasing throng of aware customers who are demanding a reprieve from the onslaught of nutritionless junk and overprocessed foods. Runaway medical costs are overwhelming everyone. It's clear that this group of aware consumers is now large enough to influence corporate marketing decisions; all the major cereal companies were quick to get on the granola bandwagon in the mid-'70s and the words "100 % Natural" or "No Preservatives Added" have become as ubiquitous on labels and boxes as "New and Improved!" have been. It is true that many of these claims are just more advertising flim-flam, but the fact that the Food Giants now feel the pressure to cater to the interests of food-conscious consumers shows that important progress already has been made. Perhaps, as consumers continue to grow in their awareness of the importance of food and the folly of the way we handle it, companies will be forced to cease selling food on its imagined convenience or social acceptability and instead market products on the basis of nutritional value.

Before this revolution can reach its culmination, however, there are many people who have to be reached with the truth about the Food Giants. I hope that, through this book, they will be able to learn from my experiences, and will join me in spreading the word about nutrition. In the second half of this book, I present the technical aspects of the Can't Eat Just One Syndrome, how junk foods affect the body, what foods the body really needs. I even include a section on the "Ten Easy Steps to Better Health" that will help you to eat right and spend less money (and time!) on food. It is my sincere wish that, armed with the truth, you will join the ranks of those committed to fighting the Food Giants and working for a healthier, happier world tomorrow.

#### 4: "CAN'T EAT JUST ONE" SYNDROME!

A friend of mine, Bob, had typical American eating habits — lousy ones. He was very active in sports in high school, and never quite found the time to sit down and eat a decent meal. Instead he grabbed whatever he could, whenever he had time. Like most kids, he made frequent trips to his favorite fast-food spot, and spent the rest of his time munching candy bars and guzzling cola. He couldn't stand vegetables, but always yearned for a cheeseburger and french fries.

When Bob graduated from college and became a radio disc jockey, his eating habits went from bad to worse. He rushed to work in the morning and spent a few seconds wolfing down his favorite breakfast: a handful of chocolate stars. He was on the air from 10 in the morning until 2 in the afternoon, with no time for lunch. He kept himself going through the afternoon on junk; little wonder he had no appetite when suppertime rolled around! No matter, as soon as his first shift was done, he had to cover a news beat. A quick stop at McDonald's and he was back to work. When he got home at night, his hunger had returned, so he filled up on popcorn covered with salt and drenched with butter. And throughout the day, he drove himself on with can after can of cola.

"No doubt about it," Bob recalls today, "I was a junk-food addict."

After a couple of years of this regime, Bob noticed that his health was deteriorating. He seemed to suffer headaches more frequently, and a simple cold would take him weeks to shake. He would

come home late at night unable to sleep, and would wake the next morning feeling exhausted and lifeless. He would be unable to function until he had another can of cola and a few more chocolate stars. He often felt restless and irritable, and found that he was getting less and less done on the job.

Then Bob began to experience a sharp pain in his stomach. He remembered that his family had a history of cholesterol problems and colitis. Alarmed, he finally sought the help of a doctor.

Millions of Americans are just like Bob — hopelessly hooked on potato chips, hamburgers, candy bars and cola. Their lives are spent in a miserable limbo between sickness and health. They're slowly killing themselves, gorging their way into obesity, hypoglycemia, diabetes and heart disease. They are casualties of processed food addiction, victims of the Can't Eat Just One Syndrome. What causes this syndrome, and what is it doing to our bodies?

The organ which controls our craving for food is called the appetat. It is located at the base of the brain, possibly in the hypothalamus (an area of the pituitary gland). The appetat is constantly monitoring the blood for nutrient content. Only when 51 nutrients are present at their proper levels will the individual feel entirely full and satisfied. If any one nutrient is missing, the individual feels hungry.

Exactly what sort of nutrients will trigger the appetat and in what proportion they are needed is a question which still puzzles scientists. Some of them we know about: vitamins; minerals such as calcium, phosphorus, potassium, chlorine and molybdenum; such amino acids as valine, lysine, threonine and tryptophan, most of which we get from proteins; essential fatty acids; fiber. Many others have yet to be isolated. This sort of nutrition research is expensive, and the going is slow. But even though we haven't discovered all the essential nutrients, it is crucial that our bodies get them all — known and unknown — in order to feel satisfied and healthy.

Many nasty tricks are used by Food Giants to make you overeat. Adding lots of fat, sugar and salt are obvious ones. They know that if they add enough fat, sugar, and salt Americans will eat almost anything — such as George Bush's favorite pig-out food — pork rinds. But potato chips aren't much better. They should really be called fat with a small amount of potato added.

The real dirty tricks that food companies use to make you overeat are more subtle and don't jump out at you when you read the label — things like "natural flavoring" — which sounds very benign, but it can be almost anything. It can be nucleic acid from chromosomes of cells, extracts of yeast cells or waste beef or worse. Rabbi Eidlitz from the Kosher Information Bureau in North Hollywood, California, reported that some ingredients with names like "natural" colors have been known to contain monkey intestines and "artificial flavors" from ground-up cats. So if you like to eat cats, you'll know what to look for. One thing for sure, it's there to make your taste buds go crazy, so that if you eat just one bite, you're hooked and have to keep right on eating until the bag is empty. These compounds have only one purpose — to make the Food Giants' sales climb.

The most insidious, most misleading compounds ever added to foods have the sweetest name of all — artificial sweetener — because they're not added to make foods taste sweet, they're added to make you overeat. They work, too, don't they? Have you ever noticed a morbidly obese person walking out of the grocery store with two cases of "diet drink" and four six-packs of candy bars. If diet drinks worked, Americans would be the thinnest people on Earth. In case you didn't know, sugar consumption per person has dramatically increased since artificial sweeteners came on the market. In fact, since 1980 average sugar consumption each year in the U.S. has increased 17 pounds per person. How silly of you to think that Nutrasweet replaced sugar — it didn't. It increased the craving for sugar and the percentage of people overweight also has increased. That couldn't be Nutrasweet's fault, could it?

Why don't you call the corporate research offices of Nutrasweet and ask them for some scientific proof that Nutrasweet has helped animals or humans lose weight. They don't have it because no controlled trial has ever proven that it works.

The University of Wisconsin one time tried to do a controlled experiment on the effect of artificial sweeteners on humans. They found that they had to put the people behind prison bars to keep them from snitching food after drinking artificially-sweetened foods. Then somebody brought the test subjects a dozen roses because he felt so sorry that they were locked in a prison cell. The prisoners ate the roses.

Some scientists at the Monell Research Center have figured out why this happens. They have found that as soon as the tongue tastes something sweet, the body converts glucose in the blood into storage fat, causing the blood sugar to drop. If the sweet food contains no sugar, then the blood sugar drops, causing hypoglycemia. You get a real craving for food—real hunger pains. About that time, you dash into the kitchen, inhale any food you can find, then calmly walk back to the TV as if you haven't had a thing to eat.

A little while later, you feel guilty for eating that junk, so you have another diet soda to make up for all those calories you ate in the previous hour. Then you have another major craving, and the cycle starts all over again. Sound familiar? Now you know why the obese often get fatter. The harder the obese try to avoid calories (the more diet soda they have), the more problems they have. The Food Giants laugh all the way to the bank. As they get richer, j Americans get fatter, and they don't care.

Have you ever eaten just one Oreo cookie? Bet you can't, either. They look so sweet and innocent! What you should realize is that the Nabisco Company spent millions developing that formula so that you can't eat just one. It contains 23 different appetite stimulants and 11 artificial colors. I saw the recipe and I was aghast. It's not easy to make a cookie that will hook every last American. So next time you buy a package of Oreo cookies, be assured that you'll eat them all at one time and gain another pound. And, the Food Giants will have another dollar in their -pocket.

Another dirty trick the food companies have been pulling on the American public since 1911 is hydrogenated fats.

They have been selling partially hydrogenated fats (margarine and shortening) as a healthy, kosher alternative to lard, butter and other fat.

Until the '80s, no one tried to find out if it was any more healthful than lard or butter. No one, that is, except for a few scientists like Ralph Holman at the Hormel Institute, who intuitively knew that hydrogenated fats were inherently dangerous. Finally, Harvard School of Public Health did a long-term study by asking people how much margarine they were eating, then sat back and waited to see what they died from. Lo and behold, they discovered that the people who ate as little as three pats a day of margarine had twice the heart-attack rate of those who ate less than a pat a day, far worse than those who ate lard or butter. I hope that every margarine manufacturer in the country gets his pants sued off for grossly misleading people about how healthful margarine is.

You'll find margarine or shortening or partially hydrogenated vegetable fat in nearly every bread, cookie and cake sold in America.

Your nutritional needs vary from your neighbor. Your genetic make-up, your age and your living conditions all have an effect on your nutrient needs. If you smoke, you may need more vitamin C. If you live in an area of high air pollution, you may have a shortage of vitamin D. If you're on the Pill,

chances are you have deficiencies in vitamins B6 and B12, among others. Scientific evidence suggests that the nutritional requirements of healthy adults for calcium may vary by as much as 500%. The requirements for vitamin A and for thiamine (vitamin B1) may vary over a fourfold range. In fact, the need for some nutrients may vary between individuals by 1,000%.<sup>1</sup> With all this in mind, it's easy to see how foolish it is to rely on the basic four food groups for nutrients. Your nutrient requirements depend upon your own special situation — not on some arbitrary standard set by bureaucrats in Washington!

To make matters even more complex, many nutrients can be metabolized (used by the body) only when in the presence of certain other essential nutrients. Two outstanding nutritionists, Doctors R.A. Harte and B. Chow, did an extensive study of these dietary relationships. They discovered that the absence of a single essential vitamin, mineral, amino acid or fatty acid can create a "shock wave" that hinders the metabolization of all other nutrients.<sup>2</sup> It's clear that getting an improper nutrient balance can be almost as bad as getting no nutrients at all.

It is important to remember that the body's hunger mechanism is affected by the presence of all nutrients, not just calories. Caloric intake is only one part of good nutrition. Dieters especially are prone to the misconception that calories are all they need to count, so they fill their meager calorie allowances with foods that are high in processed carbohydrates and almost devoid of other essential nutrients, foods which can only aggravate their hunger, yet never give their bodies what they really need. At the same time, the empty calories they eat rob their bodies of what nutrients they have stored. This nutrient depletion can lead to lethargy, irritability and, in some severe cases, even psychosis.

Cravings — unusual desires for certain kinds of foods — can often be a signal of nutrient deficiency. If you have a potassium deficiency, for instance, you may develop a yearning for bananas. A shortage of vitamin C may make you hanker for oranges or some other citrus fruits. Following such cravings is usually a good idea, although it can lead to some surprises. For instance, let's suppose you have a copper deficiency. Now, sunflower seeds are an excellent source of copper, and if you try a few you'll soon be gobbling them by the handful. Your body is telling you that you really need the copper you're getting from the seeds. Unfortunately, sunflower seeds are also high in calories, and you may become concerned that you're getting more calories than you need. No need to worry, though — in a few days you'll have raised your copper level back to normal, and a small handful of sunflower seeds a day will be all that's necessary to satisfy your craving.

Nowadays, however, it's easy to be tricked when you follow your cravings. For example, if you're not getting enough B vitamins, you may find yourself longing for a beer—and for good reason. Throughout human history, beer has been one of the primary sources of the B vitamin complex. That good, yeasty flavor in the suds tells your body it's getting what it wants. The problem is that American beer manufacturers have found a way to remove the vitamins from their product. The yeasty flavor is supplied by chemicals. As a result, you can now drink glass after glass of American beer (such adulteration is not allowed in Europe) and never get the B vitamins your body needs. So sometimes it's important to "teach" your body that it can't always have what it thinks it wants, especially when what it wants is junk.

Hunger is affected by many factors: not only nutrient level, but also the physical volume of the food, the amount of effort it takes to chew it, and how much water is in it for digestion, to name just a few. We are only beginning to learn about many of these factors. But your body knows about them, and cries out for them whenever it feels a nutrient deficiency. What do you do when your body comes crying to you? If you're like most Americans, you give it the worst thing possible — processed foods.

Processed foods are foods that have been changed — foods no longer in the form in which they are found in nature. Actually, most foods, even natural foods, undergo some processing. Corn, for example, must be cooked in order to be properly used by the body. Nothing is wrong with processing, if kept to an absolute minimum. But the majority of processed foods found on grocer's shelves are processed beyond excuse. Vegetables are cooked to mush, raw sugar is refined to sucrose, potatoes are turned into dehydrated flakes. Some processed foods have never been in the state of nature. Instead, they are fabricated in laboratories, created from chemicals, vegetable protein, and hydrogenated oil. When we say processed foods, then, we really mean foods that have been unreasonably changed.

Processed foods are terrible things for your body for two reasons — they are stripped of their nutrient value in the refining process, and they are poisoned with sugar and other harmful additives.

Wheat flour is one food which is especially ravaged by processing. In the refining process, more than half of each of the most essential nutrients is sold for making pet food. The milling process destroys 40% of the chromium present in the whole grain, as well as 86% of the manganese, 89% of the cobalt, 68% of the copper, 78% of the zinc, and 48% of the molybdenum.<sup>3</sup> By the time it is completely refined, it has lost most of its phosphorus, iron, and thiamine, and a good deal of its niacin and riboflavin. Its crude fiber content has been cut down considerably as well. <sup>4</sup> White flour is wheat flour that has been plundered of most of its vitamin E, important oils and amino acids.<sup>5</sup> Yet all of these nutrients are needed for a satisfied, healthy body. While whole-wheat flour is one of the most nutritious foods, processing sees to it that the white flour found in most products is nutritionally worthless.

In addition to refining, the cooking process also robs foods of their natural nutrient value. Heat is especially harmful to pyridoxine (vitamin B6), and it can destroy other nutrients as well. The soft, mushy vegetables you buy in cans contain only traces of the nutrients they had when they were fresh in the field — canned peas have lost all but 6% of their nutrient value by the time they are eaten. Raw apricots have more than twice the vitamin C of canned apricots in heavy syrup, as well as 177% of the niacin, 150% of the riboflavin, and 145% of the vitamin A. You do get one "bonus" from the canned apricots, however: 44% more carbohydrates. <sup>6</sup> Breakfast cereals fare no better in the processing game. The popping, puffing and extruding they go through cut their food value down substantially.

What about the "enriched" and "vitamin fortified" foods? They're an outlandish rip-off. For example, white flour is enriched with vitamins only after it had been stripped of several times that many. Even after enrichment, white flour has less than half the calcium, and far less than a third of the phosphorus and potassium of whole-wheat flour, even though it has more carbohydrates than whole wheat.<sup>7</sup> No wonder that, in one research project, two-thirds of the rats kept on a 90-day diet of enriched white bread died before the experiment was finished!<sup>8</sup> The eight vitamins sprayed on most "fortified" breakfast cereals represent only a small portion of the nutrients originally present in the grain —not to mention fiber, an important ingredient which has been removed almost entirely. What's more, many of the synthetic vitamins added to foods cannot be properly used by the body. For instance, the iron in most "iron-enriched" breads is provided by phosphate salts of iron. These salts may have the light, pleasing color that bread manufacturers think the public is looking for, but the iron they provide is very poorly absorbed in the body. To top it off, enriched foods often contain preservatives, such as phosphates or EDTA, which serve to diminish the availability of the iron still further. <sup>9</sup>

Most importantly, we are only now discovering the nutritional properties of the parts of whole foods that are thrown away in refining processes — bran and wheat germ — are two good examples of things once thought to be "waste" products. Clearly, when the Food Giants spray a few cents worth

of synthetic vitamins on junk food and then claim that their products are as good or better than whole, natural foods, they are perpetrating an enormous fraud.

But the Food Giants do more than just plunder their products of nutrients. Even though they've made the foods nutritionally worthless, they're not satisfied until they've turned them into poison. And their favorite ingredient for poisoning foods is refined white sugar.

White sugar—or sucrose—is one of the purest substances in the grocery store. It is chemically almost identical to glucose, which is the form digested sugar takes in the bloodstream. It contains no nutrients; an unfortunate fact, since sucrose requires other nutrients, such as chromium, sodium, potassium, magnesium and calcium and many B vitamins, in order to be metabolized. Since it is a sort of predigested sugar, it passes directly through the lower intestine and enters the bloodstream almost immediately.

A terrifying cycle begins. The dramatic rise in blood-sugar levels demolishes the delicate oxygen/glucose balance that the body maintains in the blood, and the individual feels tense, nervous and hyperactive (remember how Bob, after a full day of eating candy, could never seem to fall asleep at night?) The islets in the pancreas kick into high gear, producing massive doses of insulin to get rid of the sudden sugar load. The insulin carries the sugar to the liver, where it is converted and stored as the complex sugar glycogen. The process continues madly, and, as quickly as it came, the sugar levels plummet. The body's cells, especially those of the brain, are starving. The individual feels sluggish and drowsy, and may even lie down and fall asleep. The pancreas shuts down, and the adrenal glands and pituitary gland produce hormones which begin converting glycogen back to glucose. When the individual awakes, his body is screaming for more white sugar to restore depleted blood glucose, and as soon as he answers (perhaps with a breakfast of chocolate stars), the roller-coaster ride starts all over again. Although we'll be discussing the larger health effects of sugar consumption a little later in the chapter, it is enough to say for now that the wildly fluctuating blood-sugar levels caused by sucrose ingestion, which elevates insulin levels, can be enormously damaging to the pancreas, liver, brain and other organs.

Sugar is poison, and it's everywhere. You know about the sugar in your coffee, and you know it's in snacks like marsh-mallows, chocolate bars, gum and soda pop. But you probably don't know that you're getting a lot of sugar from bologna, catsup, chicken noodle soup, mayonnaise, biscuit mix, medicine, and even cigarettes. Between 1913 and 1971, refined sugar consumption in America rose from 76.4 pounds per person per year to 101.5 pounds. At the same time, the amount of sugar used directly by the consumer dropped from 52.1 pounds to 42.7 pounds! This means that the better part of our increased sugar consumption — some 70 pounds per person each year — has come from sugar added to processed foods. 10 It's not hard to see where the increase came from: Del Monte canned peaches in heavy syrup are 12% sugar by weight; General Foods' Tang and Jell-O are 13%, and Morton's coconut cream pie is 24% sugar. 11

It's no secret that breakfast cereals are some of the most sugar-poisoned foods around. It's not surprising that the food giants are fighting legislation that should force them to print sugar content right on the box! Cereals like Kellogg's Sugar Corn Pops and General Mills' Count Chocula are more than 45% sugar, and Kellogg's Froot Loops contain nearly 50% sugar. Sugar Smacks lead the way, though, with 56.4% sugar. Even the "health" cereals, such as Quaker 100% Natural and Kellogg's Bran Flakes, can contain nearly 25% sugar. 12 Never mind the reassuring "vitamin fortified" labels on the boxes — pre-sweetened cereals are killing your children.

Sugar is just one ingredient that has become far too prevalent in the American diet. Fat is another. In moderate amounts, of course, fat has its place in good nutrition. But we're far past overdoing it — our fat consumption has risen from 114 pounds per person in 1961 to 125 pounds in 1973, and the

figure is much higher now.<sup>13</sup> This dramatic rise in fat consumption is a direct result of our love affair with processed foods. The Department of Agriculture has noted that the increased popularity of convenience and snack foods, as well as hamburger joints and carry-out chicken and fish restaurants, has contributed to this increase. Of course, the Food Giants love fat. It's a cheap ingredient, it gives greater weight to foods, and it stimulates the appetite. They add it liberally to everything from margarine to breakfast cereal. Most of this fat is in the form of partially hydrogenated vegetable oil, a form which upsets cholesterol metabolism. <sup>14</sup> Leading researchers are now recommending only 10% of calories from fat or 25 grams per day. The USDA Eating Right Pyramid recommends a maximum of 50 to 65 grams a day, depending on work output.

Salt is another of the Food Giants' favorite additives used to excess. The human body needs some salt, but it doesn't need a lot. Some doctors estimate the daily requirement to be about half a gram. In fact, excessive salt has been found to contribute to high blood pressure and hypertension. But the food scientists know that excess salt stimulates the appetite, so they dump it generously onto potato chips, bread, processed meat, canned vegetables and a host of other foods. By the time a can of peas reaches your table, daubed with butter and dashed with a salt shaker, its salt content is 225 times what it was when it was fresh in the field. Today Americans consume 6 to 18 grams of salt a day.<sup>15</sup>

The average American also eats nearly 10 pounds a year of some 2,000 other additives. These range from the well-known ones, such as monosodium glutamate (MSG), to butylated hydroxybenzoate, the stuff that stabilizes the foam in your beer. While many of these additives may be relatively harmless, some are clearly dangerous. MSG, for example, has been linked to brain damage in infants, and one researcher has found that as much as 50% of the hyperactivity among American children may be caused by artificial flavorings and colorings.<sup>16</sup> But most food additives are simply a mystery. No one knows what they are doing to you, either alone or in combination. Even the government isn't sure—it has changed its mind on 8 of the 19 food colorings once declared "U.S. Certified." <sup>17</sup> But the Food Giants do know one thing — chemical additives mean profits. Preservatives like BHT, BHA and EDTA keep foods fresh for months, enabling them to be manufactured more cheaply in huge, centralized factories and shipped long distances, or stockpiled until the price goes up. Artificial flavorings and colorings, along with "flavor enhancers" like MSG, allow the food conglomerates to tickle your taste buds while sparing them the expense of real, natural ingredients. So even though most chemical additives have never been fully tested for safety, the Food Giants use them with enthusiasm.

Ruined natural ingredients, plus sugar, salt, fat, and chemical additives. Put them all together, and what have you got? You've got tantalizing, phony foods that are high in refined carbohydrates and calories and devoid of nutritional value. It's a recipe for destruction — the formula for "Can't Eat Just One."

Here's how the syndrome works. Say you sit down in front of the TV with a bag of chips and a can of cola. You pop one of the chips in your mouth. Its salty flavor entices you, and you're soon munching them by the handful. All the while, your body is getting hit with the old one-two: lots of simple carbohydrates to digest, and no nutrients in the food with which to digest them. Your system starts robbing its own nutrient stores — assuming it still has any nutrients in reserve — but these are soon gone. Your bloodstream is depleted of nutrients, and your appetite tells you that you need something more. Your body is crying, "Food, food!" But you're not giving it food. You're munching down more chips.

You take a swig of cola. Your body, already locked in combat with the garbage you've been eating, reels from the sudden dose of sugar. After a few minutes of sugar high, your pancreas is working overtime, filling you with insulin. Soon your bloodstream is seriously sugar-depleted. You reach for another can of cola.

On and on it goes, throughout the evening. You stuff yourself with garbage that can't fill you up, but makes you thirstier, and you guzzle down poison that will only make you tired. Soon the bag of chips is gone and you've polished off three cans of cola. You get up and run to the kitchen, looking for that bag of potato chips, or maybe a peanut butter sandwich on soft white bread. On the way out you grab a fourth can of cola from the 'fridge.

You know you shouldn't be eating so much, especially after such a big supper. But you can't help yourself: you're hooked. You can't eat just one.

Does the scenario sound familiar? Late-night binges aren't the only signs of the syndrome. The harried businessman who wolfs down three or four hamburgers at the local Hardee's and the 10-year-old girl who gobbles two bowls of Cap'n Crunch at breakfast are both victims of Can't Eat Just One, and there are millions of others. Naturally, the syndrome means big profits for the Food Giants, and the Conspiracy of the Sales Curve insures that they'll do whatever is necessary to get you to eat more and more of their product. If that means more refining, more sugar, more chemicals, then so be it.

The history of the food industry is replete with examples of this constant and insidious process. It was the introduction of pre-sweetened cereals, for instance, which saved a flagging cereal market in 1948, and the Food Giants learned that the more sugar they added to their products, the better they sold. Bread manufacturers have also learned that white bread sells much better than whole-wheat bread. Not only is nutrient-stripped white flour less satisfying, but white bread's soft, gummy texture insures that several slices can be bolted in one sitting. No doubt about it! Can't Eat Just One is making the huge food conglomerates rich.

But what is it doing to you?

Well, the Food Giants aren't the only ones getting huge on processed foods — Americans are, too. Americans take in far too many calories and exercise far too little; the result is obesity. Today obesity strikes some three million adolescents and 30 to 40% of all adults. And the problem gets worse as you get older: 60 to 70% of all Americans over the age of 40 are overweight. 18 Obesity is a killer. It is considered one of the primary contributing factors in cardiovascular disease, a scourge which took the lives of 440 of every 100,000 people in the U.S. in 1978<sup>19</sup> and even more in 1992. Obesity can also lead to hypertension (high blood pressure), atherosclerosis, hernia, gallbladder disease, diabetes mellitus and liver diseases. Researchers also believe that obesity can increase the risk of many types of cancer, including colon cancer, cancer of the uterus and female kidney cancer. In fact, nearly all of the leading causes of death in this country can be traced, at least in part, back to obesity, and the millions who have lost their health to these diseases are victims of the Food Giants.

The Can't Eat Just One Syndrome is also responsible for the epidemic of hypoglycemia in this country. When I say "epidemic" I am dead serious: Marilyn Light, Executive Director of the Adrenal Metabolic Research Society of the Hypoglycemic Foundation, reports that 49.2% of the population of the U.S. is hypoglycemic.<sup>20</sup> Hypoglycemia is a condition in which the body cannot metabolize sugar properly, and, given the make-up of the American diet, it's not surprising that half of us suffer from it. After the pancreas and other organs of the endocrine system have received years and years of punishment from massive doses of refined sugar and the resulting insulin and chromium depletion, they simply go haywire. They produce too much insulin at the drop of a hat, and the individual suffers from chronically low blood sugar. This leads to a plethora of worrisome symptoms: dizziness, fainting, headaches, fatigue, drowsiness, muscle pains and cramps, coldness in the extremities, numbness, insomnia, restlessness, illogical fears, nervous breakdown ... the list goes on and on.

Hypoglycemia has become so much a part of people's lives that its effects are taken for granted. The mid-morning cravings for a "pick-me-up," brought on by the huge doses of insulin your body had produced to try to cope with a sugar-laden breakfast, has been institutionalized into the coffee break. Like to lie down for a nap after supper? Chances are good you're suffering from a hypoglycemic effect. Are the kids cranky until they get a chocolate bar? They're probably well on the way to hypoglycemia themselves, if they're not already there. You may not think much about these behaviors, but they are a sign that something is dangerously wrong. Hypoglycemia can be devastating to the endocrine, cardiovascular and nervous systems, and prolonged hypoglycemia can be a one-way ticket to diabetes.

A diabetic's pancreas, after years of producing too much insulin, reaches the point where it can no longer produce sufficient insulin. The body is now completely unable to deal with sugar. A sugar load will strike the body in full force, cause extreme feelings of tension and nervousness, and will then disappear almost completely, causing a catastrophically low blood sugar level, which can lead to stupor or even diabetic coma. Ironically, when a diabetic feels the grogginess of a low-blood-sugar state coming on, his doctor usually tells him to eat something sweet — a candy bar or some gum — but this only starts the cycle all over again. Even though their problems are chemically opposite, then, the hypoglycemic and the diabetic share many of the same symptoms, although the diabetic's are often more severe. For both, an inability to cope with sugar leads to a roller-coaster effect of wildly fluctuating blood-sugar levels. For both, too, the cure is the same: a diet with moderate amounts of more complex carbohydrates in high-fiber foods, which allow digested sugar to enter the blood more slowly and at a rate that the system can handle. Adding chromium to the diet also will help prevent high and low blood-sugar levels. Dr. Richard Anderson of the USDA discovered that adding sufficient chromium to the diet could eliminate one half of the diabetes in this country.

The frustrating thing about diabetes is that the disease has been known for hundreds of years to crop up whenever refined sugar becomes a major part of the diet, because refined sugar depletes the body of chromium and other nutrients. For instance, the increase in diabetes mortality in Denmark between 1880 and 1934 is in close correlation to the increase in sugar consumption in that country.<sup>21</sup> In a recent study, Yemenite Jewish immigrants to Israel were shown to have a low incidence of diabetes until they had consumed a Western diet high in sugar for several years.<sup>22</sup> It's time that people — especially diabetics or those with diabetes in their family histories — become aware that the disease can be avoided. As it is, the swelling ranks of diabetics can consider themselves victims of the Food Giants.

Alcoholism is another byproduct of the Can't Eat Just One Syndrome. Alcohol is, in fact, nothing but a super-refined sugar, containing two carbon atoms per molecule rather than the six in sucrose. The simpler molecular structure allows alcohol to enter the bloodstream much faster, directly through the stomach lining, but makes it produce as many calories as an equal amount of fat. The result is a quicker, more intense "high" than one normally gets from sugar, and, of course, a greater depression afterward.<sup>23</sup> It's not unusual, then, for those who have become bored with the "pick-me-up" they used to get from sugar to turn to the even faster lift of alcohol instead.

The link between a junk-food diet and alcoholism is quite well established. One fascinating study was done by a group of researchers from Loma Linda University. They divided rats into two groups. One group was fed a typical "teenage" diet: glazed doughnuts, sweetened soft rolls, hot dogs, carbonated beverages, spaghetti and meatballs, apple pie and chocolate cake, white bread, green beans, tossed salad, candy and cookies. The other group of rats was given a diet judged nutritionally sound for adolescents, which included fresh fruits and vegetables, nuts, legumes, and whole-wheat flour. Then each group was given the choice of two things to drink: pure water, or an alcohol/water

mixture. The rats on the nutritionally sound diet didn't care much for the alcohol and stuck mostly to the pure water. The rats on the junk food diet, however, craved the alcohol mix and drank it almost all of the time. The researchers concluded that the sort of high-carbohydrate/low-nutrient diet that most teenagers — and other junk food addicts — live on can create a biological thirst for alcohol. 24 The rising alcoholism rate among teenagers should surprise no one who knows the kind of garbage served in most high-school lunch programs. So if you want your children to become alcoholics, start them on the way with sugar.

Diseases such as diabetes and alcoholism are the more drastic effects of Can't Eat Just One. But there are more subtle, more pervasive effects that a high-carbohydrate/low nutrient diet is having on our everyday health and behavior. As Dr. Merrill S. Read, director of the Growth and Development Branch of the National Institute of Child Health and Development, has pointed out, students who start the day with a poor breakfast are often apathetic, inattentive and unruly. Dr. Read quotes studies which indicate that children who exhibit such "negative" behaviors are quieted down by a nutritional mid-morning snack. Dr. Ben Feingold, a California allergy specialist, has found that hyperactive children can be helped with a diet that restricts artificial flavorings and colorings. 25 But you don't need complex medical studies: Every time you have to drag your kids kicking and screaming past the supermarket candy counter, you get a clear view of how junk food is affecting their behavior.

How about your behavior? Research has established links between poor nutrition and emotional trauma. Junk-food addiction has been shown to contribute to depression-induced suicide, automobile accidents, juvenile delinquency, sexual problems, senility and other problems. And you don't have to be a potential suicide or an ax-murderer to be a victim of the Can't Eat Just One Syndrome. That grogginess and irritability you feel when you get up in the morning, the sluggishness you suffer by mid-afternoon, the fight you have with your spouse over dinner, your insomnia at night all are signs that processed food is taking its toll on your life.

Who knows what effect junk food is having on our entire nation? Statistics indicate that violent-crime increases in this country parallel the growth in sugar consumption.<sup>26</sup> Officials at the Montgomery County Detention Center in Maryland have found that inmates who were unruly and had poor morale when continually served prepackaged, processed meals enjoyed improved behavior when they were given a diet containing less sugar, more fresh fruits and vegetables, and whole-wheat bread.<sup>27</sup>

A remarkable program developed by Barbara J. Reed (now my wife), chief probation officer of the Municipal Court of Cuyahoga Falls, Ohio, provides some clues to the shocking damage that junk foods do to the human personality. In 1975, 106 persons whom the court had put on probation were given a questionnaire to determine their state of health. Reed and her co-workers were astonished to discover that fully 82% of those questioned displayed 15 or more symptoms of hypoglycemia, with a third suffering from 25 symptoms or more. The eating habits of these unfortunates told the story. About 16% said they craved sweets, cakes or pastry, and 26% admitted being chain smokers. Nearly a third claimed to drink very little water, while 38% said they drank a lot of coffee or tea and 33% reported daily consumption of alcohol. But the real culprits were cola and other soft drinks. More than half said they drank them daily.<sup>28</sup>

The probationers also were screened for their complete social history, including the health background of their families. Barbara reported, "It is astonishing... how many of their parents and/or grandparents are diabetics. We have not yet done a statistical work-up as to the percentage of people we see with a diabetic or hypoglycemic background but we are aware that it is very high." It was clear that the ruinous effects of processed foods on the health of the probationers and their families had contributed to their criminal behavior. 29

Those who had complained of many symptoms of malnutrition were put on a diet that stressed fresh fruits, vegetables, whole-grain breads and moderate amounts of unprocessed meats. The diet forbade refined sugar, white flour, all foods with artificial additives, alcohol, and caffeine-laden beverages, including colas and soft drinks. In addition, the test subjects were put on vitamin supplements, especially vitamin C and B-complex vitamins. <sup>30</sup> In nearly all cases, the probationers' health improved remarkably, and they became much more responsive to Barbara's normal counselling program.

In some cases, improvement was dramatic. One 51-year-old woman, for instance, was referred to the department while on probation for petty theft. When Barbara met her, she was tense, argumentative, confused, depressed and exhausted, and had been hospitalized many times for tranquilizer overdose. She complained of 40 symptoms of hypoglycemia, and was sent to a special clinic where she was indeed diagnosed as hypoglycemic. After one week of dietary therapy to correct her body chemistry, she was able to drive her car again, and in two weeks she returned to work. After two months off junk food, she was vibrant, energetic, decisive, and exclaimed that she hadn't felt so good in 10 years.

Or take the 31-year-old man who was put on probation after being convicted of telephone harassment. He had problems with the police since the age of 15, and four years of psychiatric counselling had done him no good at all. He complained of severe headaches and sweating, and indicated 49 of the hypoglycemic symptoms. He too was diagnosed a hypoglycemic and put on dietary therapy. Within one week his headaches and sweating ceased. His attitude and appearance improved remarkably, and he got a promotion in a job he had nearly lost before his treatment. After four months of eating right, he was making plans to return to the University of Akron to work for a degree in civil engineering. <sup>31</sup>

America is becoming a nation of processed-food junkies, and the effects are all around us. Our overfed, undernourished condition is contributing to everything from our rising crime rates to the increase in highway fatalities. And J.I. Rodale, in his book, *Diet and War*, has pointed out that excess consumption of sugar, white flour and meat always seem to be accompanied by an aggressive and militaristic national policy. If anyone seeks the cause for the so-called "decline of America," let him look first in America's kitchens.

So murderous is America's love of junk food that citizens in 15 other nations can now claim a longer life expectancy than we can.<sup>32</sup> How can this be, some wonder, when America is the richest nation in the world? The answer is quite simple. We believe being the richest nation in the world means eating more junk food than anyone else around. It is our twisted sense of affluence which makes us lag so far behind Japan, Sweden and Norway in life expectancy.

There is another phenomenon which points out the hazardous effects of processed foods: the inordinate gap between male and female life expectancy in the United States. Women in this country simply live longer than men. Now, this sort of gap is not typical of all organisms. Males and females of other species have very similar life expectancies. Nor is the tremendous gap peculiar to all humans. The difference between male and female life expectancy in the U.S. is twice that of France, for instance. <sup>33</sup> Nor has the gap always plagued Americans. The difference in life expectancy between 20-year-old males and females in this country grew 820% between 1850 and 1977! In the latter year, the average American male could expect to live until age 70, while the average female lived to nearly 78. <sup>34</sup> No, this horrendous difference can only be explained by the modern American male lifestyle — the lifestyle of the individual who scorns vegetables, thinks of salad as "rabbit food," loves to fill up on steak and mashed potatoes, and never watches television without a beer and a bowl of chips. It's crystal clear that Americans — and especially American

men — are paying for junk food addiction with their lives.

The ones most devastated by the growth of the processed food industry are the populations of the underdeveloped nations. In their insatiable lust for sales, the food monsters are competing for overseas markets. They are pouring millions into Third World advertising campaigns, trying to convince the poor Brazilian farmer that "He Deserves a Break Today", and the starving child of Ghana that "Things Go Better With Coke." Indeed, my Colombian friend who preferred Coca-Cola to milk is one of the Food Giants' victims.

The Food Giants are certainly racking up a lot of victims in the Third World. Two noted food researchers, Frances Moore Lappe and Joseph Collins, have visited stores in the rural areas of poor countries and have found chewing gum sold by the stick, Ritz crackers sold one-by-one, and two-packs of Twinkles split up so the awful things can be sold separately. The demand for this poison has been generated by food-conglomerate advertising that is doing a great job of teaching people in poor lands "that their traditional diets of beans, corn, millet and rice are worthless as compared to what Americans eat." 35 To the food conglomerates, poor people turning from native, whole foods to processed junk means profit; to the people themselves it means slow death. They spend the little money they have on high-carbohydrate, low-nutrient foods, and the resultant nutrient depletion of their bodies sends them further down the road to malnutrition.

One area in which promotion of processed foods has been particularly successful — and horrifying — has been the area of infant formula. Billboards and radio spots, free samples and fake "milk nurses" have convinced poor mothers to reject breast feeding as "old-fashioned," and to turn instead to powdered formula, which they can neither afford nor prepare properly. Thousands of children a year are dying from the "bottle disease" epidemic, while the formula companies — most notably Nestle — grow rich.

The starving child in India and the comfortable American housewife — both are victims of the triumph of processed foods. Today, nearly 10% of the world's population cannot afford to buy sufficient food. But 20% of those who can, choose instead to buy something undernourishing. 36 This, in the end, is the ultimate aim of the Food Giants: to conquer the entire world with massive advertising and addictive products. The results are horrifying in the underdeveloped lands, where knowledge of nutrition is scarce. But even wealthy Americans, who should know better, spend less than 10 cents of their grocery dollar on fresh fruits and vegetables, and the health effects of this neglect are enormous. Only 20% of Americans eat a low-fat diet and only 15% get enough nutrients every day. Sadly, only 3% get the combination of low fat and adequate nutrients. Must we be doomed to waste more and more of our resources on foods that are killing us? Can nothing be done?

We look in vain to the government for help. The federal health establishment had until 1992 been spreading information on nutrition that is worse than useless. For instance, they have been responsible for the myth that all one needs to do to insure good nutrition is to eat foods from the "Four Basic Food Groups": breads and cereals, meats, dairy products, fruits and vegetables. No matter that the bread is denuded white bread, that the cereal is pre-sweetened, that the milk has been broken down and formed into "processed cheese food," or that the fruit comes in heavy, sugary syrup. The government treats whole, fresh foods as nutritionally equal to the nutrient-robbed processed merchandise that takes up so much of the grocer's shelf. In fact, it wasn't until 1979 that the government approved the use of fresh fruit in school-lunch programs!

One of the biggest pieces of misinformation that the government has spread is the "Recommended Daily Allowance." We have already seen that the RDA can tell us little about our own nutritional needs as individuals. But if that weren't reason enough for scrapping it, the fact that the RDA itself keeps changing erratically is. Look, for instance, at the RDA figure for pantothenic acid that had

again been removed from the list. 37 Did our physical needs change so much over time? Of course not; science simply proved once again that it doesn't know as much about good nutrition as our own bodies do. In fact, there's only one point on which nutritionists agree about the RDA: The allowance for most of the listed nutrients is drastically too low. There's little reason to wonder why this should be so. Most of the men who make up the RDA list are food industry officials themselves. They're only trying to save the Food Giants "unnecessary" work.

In the early '80s, I taught a nutrition class at the local YMCA to a group of people who wanted to know more about nutrition than the local University Extension was willing to teach them. I had great fun teaching the importance of each individual vitamin and mineral, just like I was taught. Everything went well until the last class when I told them that a good diet of whole-grain breads and cereals, fresh fruits and vegetables and a minimal amount of animal products would provide all of the vitamins and minerals that their body needed, except for Vitamin C, which I felt the body needed more than the RDA required. One young female asked me to prove it from the nutritional content of food tables.

I went home, and set out to prove that I was right. Lo and behold, I was dumfounded to find out that I was dead wrong. Not only ordinary supermarket foods, but even organically grown, whole, unprocessed foods did not provide all the nutrients. I checked and re-checked the scientific journal articles and I found that very few scientists had checked to see if diets would actually deliver the RDAs.

One study that I found was done at the University of Wisconsin in 1967, but not published until 1976 in the Journal of the American Dietetic Association. The study did show that "balanced" diets according to the basic four food groups were severely lacking in eight different nutrients. The study was carefully done by weighing food before serving and subtracting for plate waste, etc. Even the University Extension people were unaware of the study that had been published seven years before.

I was shocked and chagrined for the huge lie I was telling my students. I also felt that I was misleading the customers who were buying my bread. It was not nearly as nutritionally complete as I had thought it was. So, I began tinkering with the recipes to see if I could end up making a product that was much more nutritionally complete, that when added to a diet of fresh fruit, vegetables and a few or no animal products would provide a nutritionally complete diet as defined by the RDAs.

I started adding zinc, iron, copper, folic acid, pantothenic acid, selenium, chromium, manganese, niacin and riboflavin. I used the best forms of these compounds so that they would be highly bio-available. The forms of the compounds I chose would be found in natural foods, but not at high enough levels for the amount of food a person who was on a calorie-restricted diet would eat. I found that adding these compounds to bread formulas was easy and only added a few cents to the cost of each loaf of bread. But, I could not find a way to add some of the nutrients to the breads because they prevented the bread from rising.

In the fall of 1986, Dr. Tony DeBartolo, a nutritionally oriented physician from Sugar Grove, Illinois, called me and told me that Natural Ovens breads were 98% perfect and why didn't I go all the way.

I told him I thought a grade of 98 was pretty good, and I had only averaged 88 in school, but then, I asked him what did he mean. He said he thought there was a problem with the refined oils we were adding to the bread, that the soybean and peanut oils we were using had some problems. He said that soybean was high in Omega-6, which promoted the growth of tumors, and that peanut oil was likely to be contaminated with aflatoxin and was atherogenic — promoted plugging of the arteries. I agreed with him, but told him they were the "best" available. So I asked him, "What should I do?"

He said, "You are a biochemist, you figure it out." I said to myself, "Thanks, but no thanks."

Then I got to thinking. Why not look for an oil seed that could be ground and used directly in the bread dough? I knew that most of the problems came from the processing and refining of the oil at high temperatures; it wasn't entirely the oil itself. The processing removes the protective substances and starts producing peroxides, cyclic monomers and other toxic substances. The only oil that this didn't happen to is olive oil, and it created real flavor problems in the bread.

I tried several different oil seeds — whole soybean, sunflower and flax.

The soybeans made the bread taste like paint. The sunflower made the bread fall apart, but the flax made the bread taste great, hold together and rise better, and gave the bread a slight nutty taste. I was elated.

Then I went to the library to find out more about flax. The account given in the Encyclopedia Britannica of 1898 gave the most complete information. It told how flax seed had been used for centuries as food and how the plant had been used for thatching on roofs and how the stalks had been retted and used for making linen. More recent information hinted that flax may contain toxic compounds and had fallen out of favor as human or animal food because of flavor problems.

I decided to visit the universities in states that grew the most flax. Surely, they would know more about it. In November of 1986, I headed for North Dakota State University in Fargo — a real nice place to visit in winter.

In 20-degree-below-zero weather, I got the good and bad news. Flax contains an anti B-6 compound that could cause death in young chickens by tying up all the B-6 available in a regular diet, but the anti B-6 factor could be overcome by adding extra B-6 to the diet. I also learned that I should visit Dr. Ralph Holman at the Hormel Research Institute of the University of Minnesota because he knew a lot about the types of fat in flax.

On the way home from North Dakota I stopped by to see Dr. Holman. He told me that flax was a very rich source of a fatty acid called Omega-3 and that Omega-3 in the Eskimo diet had been found to prevent heart trouble in the Eskimos, even though their diet consisted of 60% fat and contained more than 1,200 mg of cholesterol each day. I was highly elated. I had found something that could make the bread taste better, but would also dramatically improve the health benefit of the bread. I learned that the flax contained 10 times more Omega-3 than any fish oil and that the type of Omega-3 found in plants, called by biochemists alpha-linolenic acid, was safer than the type of Omega-3, DHA and EPA found in fish oils. I was so excited that I could hardly wait to get home and do more testing.

As soon as I got home, I ordered 10,000 pounds of flax from a grain dealer in North Dakota. I immediately ordered a grinder, started soaking the flax as soon as it arrived, and started grinding it. What a mess it made!

Ground, soaked flax is the stickiest mess on earth. I found out why it had been used as wave set for people's hair in the former generations. I found out that I had more research to do.

First, I discovered that dry flax seed was difficult to grind and so I had to modify the grinder and grinding procedures.

Second, I discovered that it tended to go rancid quickly after being ground, but that if I added zinc

to the flax, it would tie up the iron to prevent peroxidation. (I have a patent on this idea.)

Third, I discovered that some of the varieties of flax turned rancid very quickly and that others tended to stay good for a long period of time.

Within a year, I incorporated all of the results into a procedure that dramatically improved the process of adding flax to foods. For a one-person research team, I thought I had done pretty well.

In 1988 I took this idea and my newly developed flax products — a dry flax drink product and flax-based breads — to a scientific conference on Omega-3 in Belgirate, Italy.

The scientists there were very skeptical. First of all, they knew that the foods would taste horrible if they had that much Omega-3 in them. Secondly, no product could contain that much Omega-3 in a single serving.

Were they ever surprised about how good the foods tasted. Secondly, they were amazed when I proved to them how much Omega-3 the products contained — up to 2,000 mg in a single glass of orange juice and up to 1,000 mg in 2 slices of bread.

As a result of this work, a large article appeared in the big papers in Chicago, Milwaukee and the Twin Cities. Flax was finally getting the recognition it was due.

The FDA questioned my use of flax in foods, but when I showed them the safety data I had on flax and the 8,000-year history of the use of flax in foods they accepted flax as a normal food ingredient.

Researchers in the University of Toronto began studying flax with grant money from the Flax Council of Canada. Dr. Stephen Cunnane found that the linolenic acid in flax could lower people's cholesterol level and Dr. Lillian Thompsen found that the lignans in flax could act as an anti-estrogenic compound and help prevent the growth of neoplastic tumor cells in the colon and mammary gland. As a matter of fact, Dr. Thompsen found that high levels (10% of the diet) of flax could act like Tamoxifen, yet was much cheaper and safer than Tamoxifen, and the side effects were much less severe.

As a result of these studies, the nutritional watchdog in Canada, Health and Welfare Canada, studied flax intensively for two years and had only praise for flax's health benefits.

Then the National Cancer Institute got into the act, and the Dietary Prevention branch under the capable leadership of Dr. Herb Pierson administered a half-dozen research grants to study flax and found many beneficial results. They found it lowered people's blood pressure and cholesterol, decreased in the body the production of PGE<sub>2</sub>, (a compound that stimulates the growth of cancer cells), helped people lose weight and had many other beneficial aspects.

The NCI also funded the FDA to do further studies on flax. This is one of the first times that the FDA has taken a proactive stand and started looking for foods that they can approve of before they are widely used by food companies.

I decided in 1988 to feed it to chickens and to pigs for seven generations to determine the long-term health effects.

Upon feeding it to chickens, I discovered it could make the chicken meat taste much better and have as much Omega-3 as any fish. I also discovered that the eggs contained high levels of Omega-3 and would make egg yolks an ideal feed for young infants. Researchers in Canada fed people with

normal cholesterol values four eggs a day for 10 weeks and found no increase in serum cholesterol value, whereas from the scientific folklore on eggs, one would have expected the serum cholesterol value to go up 50 points.

Upon feeding flax to pigs, I found that it made them healthier, calmer, easier to work with, and over a five-year period, average litter size increased 50%. Not bad for a food product that has been around for 8,000 years, but had been neglected during the present century.

In 1992, I found a way to add calcium and magnesium to bread. I discovered that most forms of calcium and magnesium are alkaline and prevent yeast from working. I spent several years trying to find away to prevent this alkalinity from killing the yeast. I finally discovered that if I added an organic acid from citrus fruit that it would neutralize the alkalinity. That acid is called citric acid. It worked like a charm. Now I could add 20% of the RDA for calcium and magnesium to one serving of bread, not affect the taste or rising ability of the yeast. I was elated.

The public knows very little about nutrition. Instead, it pays attention to the advertisements of the Food Giants. People buy what the food conglomerates make them want. More than 70% of weekday food advertisements time is spent in hawking garbage. 38 To the Food Giants, sales are more important than nutrition. Meanwhile, the customers are being brainwashed — lulled into thinking that because we have a Department of Health and Human Services that approves these processed foods, they must be good to eat. They're tragically mistaken. The time has come for people to start reading labels and paying attention to what they put in their bodies.

Until food companies are required to pass a test for nutritional value in a product, like flax did, before it's put on the market, and unless the government advises people which foods are so nutritionally worthless that an animal can't even survive on them, the consumer will continue to be in the dark about nutrition. The federal food agencies should be prepared to require that all products must satisfy a sufficient amount of the body's nutrient needs in order to earn the name "food." Otherwise, the public should be warned against them.

We do, in fact, have such a nutritional testing program in this country — but it's for pet foods. In order for a product to be labeled "dog food," it must satisfy all the nutritional requirements of the animal. It must be tested on living animals, and these tests must be conducted for a minimum of two years. We have already seen how much effort and expense food companies like Quaker spend on pet-food testing. If so much attention can be paid to pet food, why can't more be paid to human food? Why is the government more interested in the health of a dog than in the health of his master? When will we ever get our priorities in order?

In his fascinating book, "Paradox of Plenty," Harvey Wallenstein give a detailed explanation of the philosophy and growth of the food industry from 1930 to 1990. He lays out in explicit detail the corrupt thinking and proves with thousands of referenced articles how the American food industry has put packaging, flavor, advertising gimmicks, clowns, etc., ahead of the all important reason for eating food — nutrition. "Paradox of Plenty" is a scholarly work that fully indicates the food industry as the super cause of American obesity and runaway sickness costs. I recommend it as a "must read."

Remember Bob, the junk-food Junkie? His doctor sat him down and asked him a question so few doctors, even today, ever think of asking: "What have you been eating?" Bob told him of the orgy of candy, cake and fast food that his diet had become. His doctor told him firmly that he must cut out all the garbage and begin to eat right. No more chocolate stars for breakfast, no more lunches at McDonald's. When he wanted a snack, he was to eat fruit. When he was thirsty, he was restricted to water or fruit juice. Bob, frightened at his disintegrating health, decided to give it a try.

Bob's new diet turned his life around. His acid stomach disappeared, and so did his insomnia. Headaches didn't plague him as they used to, and he no longer had that groggy feeling in the morning. More importantly, Bob just plain felt better. He had more energy, enjoyed life more, accomplished more. He found himself growing more relaxed and thoughtful, more in touch with himself. Oh, he admitted to an occasional can of cola or a rushed fast-food lunch, but for the most part he had said good-bye to junk and life seemed a lot nicer. At his last check-up, the doctor was amazed at his improved physical condition.

In a seductive world of foods destined to kill him, Bob saved himself. You can, too.

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## 5. THE NATURAL REVOLUTION

It really shocks people when I let them know what the junk food they've eaten all their lives is doing to them. They begin to panic, and understandably so; as victims of the Food Giants' propaganda, they have always been willing participants in their own abuse. They have been brainwashed into believing that garbage is good food and sickness is healthy, or at least normal. After so many years, it's a real jolt to find out that most everything you thought you knew about food is dead wrong.

"But, Paul," they ask me, "what can I do? Isn't there anything I can eat? I don't want to be sick; I don't want to die leaving behind exorbitant medical bills. Is there really any hope?"

The wonderful good news is that there is something you can do. You don't have to knuckle under to the disease-mongers. Instead, you can begin to take control of your own life, your own future. You can eat more than you do now and choose from a world of delicious, satisfying, lifegiving foods. You can start today to feel better, stronger, sexier, more vibrant and more alive than you've ever felt before. And you can do your part to end the growing horror of world hunger.

How? By living right, and eating naturally.

Before we talk about natural foods, though, we must first ask the question, "What is food?" Many people distinguish between natural and "regular" — meaning processed — foods. I couldn't agree less with that distinction. Food is not everything that fits into the mouth. In fact, the food in your supermarket basket should have to meet a very simple and very high standard. It must nourish the human body. In chemical analysis, it must be shown to contain significant amounts of vitamins, minerals, fiber, protein, essential fatty acids and all the other growth factors which are so vital to life. But, as we have seen, chemical testing can't tell the whole story. So all processed foods should undergo animal or human testing, to see if organisms can actually thrive on the product. Naturally, animals which live solely on the test product need not always be every bit as healthy as those on a varied diet. Nevertheless, there is no excuse for selling, for human consumption, a food fabrication (Like Puffed Wheat and many others) which actually kills test animals. The public must be warned of the dangers of these killers at least as sternly as they are warned about cigarette smoking.

True nourishment — that's my definition of food, and I won't budge on it. Neither should you.

Now you see why I don't accept the distinction between natural and "regular" food. The truth is that most of the garbage sold in supermarkets isn't really food at all. Some of it is really candy, most of it is really poison. But it's not food. Don't get me wrong — it's not that I want to see the government take all the processed foods off the shelf, although for some of the most deadly of them I might

want to make an exception. Instead, these products should be revealed for what they truly are, so that people can decide for themselves. For instance, Kellogg's Sugar Smacks, a product that's more than 56% sugar, should not be called a cereal. The word "cereal" denotes a food made from grain, but Sugar Smacks isn't a food and what little grain is left in it has been robbed of its nourishment. Sugar Smacks is a candy, and that's what it should be called. When mothers across the nation find out they've been giving their kids candy for breakfast, Kellogg's—and all the other pre-sweetened-breakfast producers — will soon be out of business. And when the government decrees that only a product that has earned the name could be sold as "food," the rest of the Food Giants will quickly follow.

The only real foods are natural foods. Natural foods are foods that have been "minimally processed." By this definition, the most "natural" foods are fresh, uncooked fruits and vegetables, and, not surprisingly, these foods happen to be the best for you. Of course, some foods must be processed as you would do in your home in order to make them fit for human consumption. Whole wheat must be cooked, whether it is prepared as a cereal or ground and baked into bread, so that it can be digested. Potatoes have to be cooked as well; their starch granules can't be metabolized until they are broken down. But in most cases, processing is harmful. Excessive milling removes the most nutritious parts of grain. Heat destroys vitamins or dissolves them into the cooking water. So the best and most natural foods are those in which processing has been kept to an absolute minimum.

Natural foods are not just good for you — they are what you must eat in order to live the life you were meant to live. Only natural foods give you a full supply of nutrients, both those we have already talked about and those we have yet to discover. The nutrients in natural foods are in forms your body can use best. The carbohydrates are complex, and even the sugars are more complex than those found in over-processed foods. The fiber content of natural foods helps you absorb nutrients at the proper rate. What's more, the nutrients in natural foods are balanced: For instance, there are enough vitamins and other micronutrients in a fresh, whole apple to help you make full use of its rich load of fructose. There's no doubt about it — your body was built to run on natural foods.

The fiber in natural foods does more for you than simply regulate nutrient absorption. Since it cannot be digested and passes through the digestive system, it helps keep the large intestine free of compacted waste matter. When an individual eats processed foods, which have had the fiber content removed so they can be eaten more quickly, waste materials build up in the intestine. This waste eventually begins to putrefy and excrete poisons into the bloodstream. These poisons are often responsible when people feel lousy, but just can't seem to put their finger on what's wrong. Foods that are high in fiber prevent this waste buildup, and fight off constipation at the same time.

The taste of natural foods is far superior to artificially-flavored foods. The reason is that natural foods have a very complex flavor profile. Each mouthful has just the right balance of sweetness, saltiness, tartness, fruitiness, and so on. On the other hand, artificial flavors are just simplistic caricatures. I like to compare artificial flavors to a child playing Chopin on the piano. About the best he can hope to do is hit all the notes. Even if he does, the performance is flat and clumsy. But when a symphony orchestra plays Chopin, you get a full, dynamic blend of bold, expressive phrases and subtle, delicate nuances. The orchestra's performance is a rich, satisfying experience. The difference between artificial and natural flavors is just as extreme. Artificially-flavored strawberry jam may remind you of the real thing, but it simply can't have the intricate, mouth-watering taste of real strawberries. Be warned: Once you've tried natural foods, you'll never again settle for the taste of junk.

Aren't natural foods more expensive than processed foods? Not on an annual or lifetime basis. Because natural foods must be grown, harvested, prepared, shipped and merchandised with far more

care than junk food, their cost-per-pound is often higher. But natural foods are more filling. They contain all those things which signal the appetat that hunger has been satisfied, and they contain no addictive ingredients. So if you're used to eating two white-bread sandwiches for lunch, just one sandwich on whole-wheat-and-flax bread will probably be enough for you. One glass of pure orange juice will give you more satisfaction than many cans of Pepsi. A bowl of natural snack mix will go a lot farther at a party than a bag of Fritos. In the end then, natural foods cost less because you need less to be satisfied.

Natural foods are better for you, better tasting, and a better bargain than processed foods. One of the most unfortunate stereotypes of the last few years is that of the "health food nut," the individual who eats unappetizing and strange concoctions and claims to get all sorts of preposterous benefits from them. In fact, sensibly-made natural foods are taste-tempting and their benefits are a matter of scientific record. If western society had the slightest idea what was good for it, it would be the junk-food addicts who would be considered "nuts."

Of course, even food itself isn't the whole story of good health; it is only one very important part of a better, more vital lifestyle. Two most important factors in total health, I believe, are fresh air and clean water. Your body is more than two-thirds water, and at rest you use 250 millilitres of oxygen a minute, or nearly 100 gallons of oxygen a day! Clearly, even a tiny trace of pollutants in our air and water can seriously affect health. You owe it to yourself to breathe the cleanest air and drink the purest water you can. But you'll have your work cut out for you: The National Wildlife Federation reports that our water quality has been declining throughout the century, and that, while the air over most of the country is getting cleaner, in many urban areas it's actually getting worse. It's time again to take up the fight to keep the two most fundamental building blocks of the body—air and water—free from filth.

Next to air and water in a wellness lifestyle come good food, food supplements, and moderate exercise. I list food before exercise because it is only nourishment that can give us the energy and soundness of body we need to jog, swim, cycle or play tennis. A great many people fail to realize this. They try to live on processed junk foods and then, when they finally decide to do something about their inevitable weight problem, they wonder why they don't have the strength to stay with an exercise program. When you begin to make natural foods and food supplements a part of your diet, you'll find you have energy to spare, and exercise becomes a joy instead of a torture.

How do you begin to eat right? For Americans, the first step is to take extra vitamins and trace minerals. Dr. Ranjit Chandra I at Johns Hopkins University found that if elderly subjects took a modest physiological amount of vitamins and I race minerals, within the first year the number of sick days due to colds, flu, etc. were cut in half (from 48 to 23 days per year). The subjects were living in Newfoundland and probably had a better diet than the average American, but still, the effect of a modest supplement was enormous. We can only speculate that if the people were given a strong, optimum-level supplement and improved their diet and lifestyle also, the results would have been even more effective. Regardless, Dr. Chandra has proven that a modest supplement can have a dramatic effect. All the various antibody responses improved significantly.

One of the problems in this country is that our attitude toward food has grown from enjoyment to outright worship. We turn to food for entertainment, for comfort, for friendship, for status, or merely for something to do with our mouths while we watch a movie. As a result, many times we eat far past the point where our hunger is satisfied. We've got to learn that every bite we eat "just for the heck of it" is really stolen out of the mouth of a hungry child. In food, as in so many other things, less more.

There really need be no set "menus" for a natural-food diet. You're free to choose from a galaxy of

fruits and fruit juices, vegetables, nuts and seeds. You should avoid white sugar, white flour, foods with artificial preservatives, colorings and other additives, and any foods that have been highly cooked or otherwise over-processed. You should keep coffee and tea to a minimum, and instead try some of the many delicious herb teas on the market. Outside of these restrictions, the sky's the limit, and once you get started you'll be amazed at the huge assortment of natural recipes there are for you to enjoy.

The cornerstone of a natural diet must be the whole grains, wheat and flax, and in America the most important source of whole grain is bread.

Our society's attitude toward bread is shameful. Bread was once called the "staff of life," and it should be that today. But today, bread is merely something to keep jelly off the fingers. We like it white, soft, and moist, so it doesn't take too long to gobble down a sandwich. In reality, whole-grain bread can play an enormous role in nutrition. It is the best and most economical source of vitamins, minerals, protein, essential fatty acids and other nutrients. If test animals can live for years on nothing but whole wheat, think of how well you can live with whole grain breads as an important part of a varied diet!

But we've got to change the demands we make of bread. Bread that rolls easily into a doughball is a one-way ticket to colon cancer. Bread should be crumbly, so it can be easily digested. Bread should be chewy, so it is more satisfying and provides needed fiber. The flour from which it is made should undergo only coarse grinding, rather than the nutrition-stealing pulverization that white flour gets. We should no longer demand bread that can sit for a week on the grocer's shelf, unless we are willing to accept the chemical poisons that go into that kind of bread.

Americans must learn that, unless they begin to eat more whole grain, they will be responsible for world starvation and obesity in America. Because we think we must get all of our protein from meat, millions of bushels of life-giving grains are fed to domestic animals rather than to people. If people in the western world would switch to eating only three ounces of meat per day as the Beef Industry Council recommends, and to using whole grains, thousands of tons of precious nutrients now lost in the animal cycle would be available for the undernourished. If this world is ever going to escape mass starvation in developing countries and obesity in developed countries, the western nations must begin the conversion to a whole-grain diet.

Keep your meals simple. Because natural foods are easy to prepare and need only light cooking, if they are cooked at all, they are really more convenient than most "convenience" foods. Don't buy the line, handed out by many in the food industry, that if you give up junk food you'll have to spend hours every day cooking. The simple, satisfying meals you can create with natural foods will actually liberate you from the Kitchen.

A very good breakfast could be something as easy as whole-wheat toast and fruit. Eggs, oatmeal, and flax and oat pancakes are a good idea for breakfast, too, because your body needs a good supply of nutrients to get going in the morning. But try to keep things light — not too greasy or sweet. Once you cut out the coffee and sweet rolls, you'll realize how great you feel in the morning.

If you must have a large meal in the day, lunch is the time to have it. You've still got the better part of the day to use all those extra calories. If you eat your big meal at night and then spend the evening watching television, your body can only turn those calories into fat, so it's best to have your biggest meal earlier in the day. A very healthful lunch can be something like whole-grain bread with vegetables, nuts and things of that sort. You can have a small amount of lean, unprocessed meat at this meal if you wish, but it's certainly not necessary. In fact, after you've been enjoying natural foods for a while, I'm sure you'll find, as I have, that your appetite for meat diminishes.

In the winter of '92 I attended a conference in Boston put on at the Harvard School of Public Health. The purpose of the conference was to find the ideal diet of the past. The scientists discovered that the ideal diet of all centuries is the Old Mediterranean Diet. That diet consisted of 50% bread, 20% vegetables, 20% fruit and 10% meat or fish. Wine was popular at meals and cooks used olive oil. People ate by alternating a bite of food, then a bite of bread. This is the ideal ratio. Sometimes, they dipped their bread in olive oil to keep the calorie consumption high enough for doing their load of work.

Someone commented that this kind of eating puts a major workload on the housewife, and today the housewife works outside the home. Then I was asked to comment.

I told them that my company had found the solution to this problem. Have the employer provide a nutritious meal at noon, as does my company, Natural Ovens. I told them how we furnish a large array of salad fixings, lots of fresh fruit, plus a main dish every day for our employees. The main dish might be a pasta dish, Spaghetti, hearty soup or stew or meat loaf, with lots of bread. (Recipes we use are included in the appendix.) I told them how this free-lunch program had increased employee morale and productivity and cut sick days in half. The meals cost the company only \$1.60 per person per day according to the accountants, but the employees know that it would cost them \$5 to \$10 to eat (not nearly as well) in a restaurant.

The participants at the conference were amazed at such a simple but effective solution to America's eating problems.

Snacking during the day is OK—as long as you stick with natural snacks. We provide our employees with unlimited vegetable sticks and fruit during the day.

Mixtures of sunflower seeds, sesame seeds, raisins and other dried fruits, nuts, and even a few carob chips are wonderfully satisfying and nutrient-packed, and you won't be prey to the Can't Eat Just One Syndrome. Drink fruit juices instead of energy-sapping colas and soft drinks; better yet, drink lots of water. Munch on a piece of fruit — if it's ripe, it makes an excellent, tasty snack.

For supper, one should do just that — "sup." Soup, crusty bread and other light entrees are perfect for this time of the day. Supper should be the smallest meal of the day, but it should also be the most prolonged. It is, after all, the only time in the day when most families find themselves all in the same room, and so it should be special. Enjoy a leisurely supper, have a bit of wine if you like. But keep the meal light, unless you're planning to work during the evening.

As I said before, though, nutritional needs vary with the individual. It is impossible to get a specific diet that's right for you out of a book or magazine—you must develop it for yourself. To do this, you have to begin to do something you've probably never really done before; something, in fact, that you've been discouraged from doing all your life. You must begin to rely on your own body wisdom.

The concept of body wisdom is founded on the simple assumption that your body knows what's best for it, what it needs, what it's getting too much of, that it can tell you when something's right or wrong with you. The existence of body wisdom should be self-evident; after all, homo sapiens has thrived on this planet for tens of thousands of years, whereas men in white coats calling themselves doctors have been with us just for a short time. This biological success would be impossible if the human body were not a finely tuned, highly sensitive organism, capable of sensing physical distress and responding to it constructively. If this built-in body wisdom has kept us going for all these centuries, it is our current ignorance of body wisdom that is now bankrupting us before we die.

Where did this ignorance come from? The Food Giants and the medical establishment have had a big hand in it. The food industry started things off by destroying our knowledge of what is good to eat. They tell us to "Come alive with Pepsi" and that "Coke adds life," that the latest sugar-encrusted kids' cereal is "an important part of a good breakfast," that men who wish to be physically active must "go for the gusto" by swilling can after can of Budweiser. The industry has spent billions of dollars encouraging us to link positive mental images with products that can only make us sick. It is little wonder that most of us have no idea of what truly good food is.

The medical establishment, and especially the major over-the-counter drug manufacturers, strike a second blow by convincing us that every pain or ache or discomfort we feel is to be feared and suppressed.

You've surely seen the television commercials in which people appear and describe the preposterous things they've been eating: sugar-laden coffee and stale, greasy donuts, grease-laden salads, and huge, greasy hamburgers. Suddenly they change color, start to waver and undulate before our very eyes, and groan "Indigestion!" Does the commercial tell you to eat sensibly, and inform you that indigestion is a sign that you're doing damage to your digestive tract? No — just take Pepto-Bismol and carry on. And the drug industry doesn't stop there. They've turned us into a nation of pill-poppers. We are encouraged to turn to aspirin-like pills for relief from the agony we inflict on ourselves with addictive food, no exercise and too much stress. We are not told that pain, even minor pain, is the body's way of telling us that we are being physically damaged and that we must respond, not by "killing the messenger," but by removing the cause of the injury and healing the wound. Nor are we told that aspirin is a very powerful chemical that can cause internal bleeding even in very small amounts and that can lead to damage of the body's connective tissues and contribute to such ailments as arthritis, while possibly preventing heart attacks.

Roloids, Milk of Magnesia, Alka-Seltzer, Ibuprofen, Tylenol and all the rest prescribed to help us silence our bodies they complain of the daily abuse we give them. If the complaints grow too loud, we can always go to the doctor, who is only too happy to prescribe something stronger and even more dangerous. Caught between the physical escapism of the drug companies and the nutritional balderdash peddled by the Food Giants, we have lost touch with ourselves. We have silenced body wisdom.

In fact, many of the messages of distress that our body sends us are now simply taken for granted. We think that drowsiness after meals, indigestion, frequent headaches and eventual arthritis are all we can expect from life. The truth is, these are signs that something is wrong.

Barbara J. Reed, whose remarkable nutritional program for probationers we discussed in the last chapter, developed a test to help people take stock of their body's warning signs.<sup>2</sup> How many of these urgent signals is your body sending you? Answer the following questions with Yes or No or Sometimes.

1. At times does your mind go blank?
2. Are you easily confused?
3. Are you forgetful?
4. Do you occasionally have difficulty with concentration?
5. Are you an underachiever now in school or at work?
6. Do you lose your temper easily?
7. Do you have difficulty in controlling your emotions?
8. Do you have excessive sexual desires?
9. Males: Are you impotent? Females: Are you frigid?

10. Do you neglect cleanliness and appearance?
11. Do you have difficulty in keeping jobs?
12. Are you impatient?
13. Do you have trouble getting along with others?
14. Do certain things irritate you very much?
15. Are you depressed, blue?
16. Have you lost interest in your work?
17. Are you tired of living?
18. Are you very nervous?
19. Has your life become aimless?
20. Are you anxious and afraid but do not know why?
21. Do you have a feeling of impending danger?
22. Do you feel very tense?
23. Do you have groundless fears, phobias?
24. Do you have crying spells?
25. Do you feel very restless?
26. Do you have suicidal tendencies?
27. Do you become violent easily?
28. Do you have a desire to cause damage to others?
29. Do you want revenge on society?
30. Does your vision occasionally become blurred or double?
31. Does sunlight hurt your eyes?
32. Do you feel dizzy or black out, especially when you stand up?
33. Are you dizzy in the morning or before meals?
34. Do you have fainting spells?
35. Are you very exhausted, especially in the morning?
36. Do you generally feel very tired and weak?
37. Are you very weak both in the morning and mid-afternoon?
38. Do you feel best after a good meal?
39. Are you sleepy after eating sweets or other starchy foods?
40. Are you very sleepy during the daytime?
41. Do you sleep poorly at night?
42. Do you wake up and cannot go back to sleep?
43. Is your sleep deep but not refreshing?
44. Do you have cold sweats during the night?
45. Do you have no muscular strength upon awakening?
46. Do you need the stimulation of alcohol, coffee, cigarettes or other drugs?
47. Do alcohol, sweets and coffee make you feel very bad?
48. Do you have constipation?
49. Do you have alternating constipation and diarrhea?
50. Do you have abdominal distress?
51. Do you suffer from motionsickness?
52. Sometimes have you lost your appetite entirely?
53. Are you occasionally ravenously hungry?
54. Are you overweight?
55. Do you suffer from continuous indigestion?
56. Do you experience bloating?
57. Does a little alcohol make you drunk?
58. Do you crave salt?
59. Do you have terrible head
60. Do you sometimes feel a pain cross your left shoulder in the direction of our collarbone, or in the back of your neck?

61. Do you suffer from heat exhaustion?
62. Do you have swelling in your hands and feet?
63. Is your mouth very dry?
64. Do you have a skin disease?
65. Do your hands and legs feel cold?
66. Do you sweat exceedingly?
67. Do your hands perspire when you are excited?
68. Is your skin dry and scaly?
69. Do you perspire little except for underarms and the palms during stress?
70. Do your limbs feel numb?
71. Do you get a tingling feeling in your lips or fingers?
72. Do you sometimes wake up in a sweat at night?
73. Do you have allergies, asthma?
74. Does your heart occasionally beat very fast?
75. Do you sometimes tremble inside?
76. Do you catch cold easily?
77. Are you very susceptible to infectious diseases?
78. Do you have aching joints?
79. Do your muscles twitch occasionally?
80. Do you sometimes have cramps?
81. Have you occasionally had convulsions?
82. Women: Were you depressed after childbirth?
83. Women: Did you have miscarriages or premature births?
84. Do you crave sweets and cakes, or pastry?
85. Do you drink very little water?
86. Do you drink much coffee or tea every day?
87. Do you drink much cola or other soft drinks?
88. Do you drink alcoholic beverages daily?
89. Are you a chain smoker?

Although this test focuses on hypoglycaemia, the list of symptoms also can indicate other serious nutritional deficiencies. Even a fully healthy person will complain of a few of these symptoms. But if you answered "Yes" or "Sometime" to more than 15 of them, it is a sign that you are seriously malnourished. If you are in this category, it's important that you abandon high-fat/low-nutrient foods immediately, and turn instead to body wisdom.

To regain body wisdom we must begin to re-educate ourselves. The source of body wisdom, like the source of all wisdom, is sound knowledge. You must discount half of what you see on television and all of what you see in advertisements. Instead, you should find out about nutrition for yourself. This book can be a good start, but it is by no means exhaustive. There are many fine books on nutrition and health on the market, and in the back of this volume I include a list of books that I think you'll find especially helpful. Once you've read a few, you'll wonder how you ever accepted the lies the Food Giants have spread all these years.

The second step is to get rid of all of the harmful things in your diet. Some have found that the best way to do this is simply to make a clean break, and they go through their refrigerators and cupboards, throwing away everything containing sugar, white flour, and artificial additives. Others, especially families with children, have had more success with a gradual approach, as explained in the last chapter. However you choose to do it, you must begin now to take the garbage out of your meals and replace it with whole, natural foods. You'll find that the more natural your diet is, the more stable and healthy your physical and mental condition becomes. Once you've reached this stable state, you can best begin to determine what diet is best for you.

Perhaps you'll find that you still have a craving for one particular junk food. Try to hold out as long as you can. Even though the junk-food manufacturer has made his wares as addictive as possible, all addictions disappear eventually. If, however, you find you just can't seem to shake the craving, you may want to try gorging yourself on the product you miss, buy a large bag of Oreo Cookies, for instance, and eat them all in one sitting. The physical revulsion you'll feel afterwards may just break you of your habit forever! After you've rid yourself of the junk in your diet, it's time to start determining those foods you most need to eat and those you should avoid. Keep a careful record of what you've been eating and how you feel afterward. That milk you had for lunch —did it refresh you or did you have a negative reaction to it? Do you crave citrus fruit? That coffee you had while watching television — how did that make you feel? Is there some natural food you seem especially hungry for? Do you feel better when you eat more of it? Does too much afternoon snacking make you feel tired? Try modifying your diet to maximize those things that make you feel good, and avoid those things that give you trouble. In this way, you'll be using body wisdom to develop the optimum diet for you.

There are some things to watch out for as you begin to develop body wisdom, however. First, sometimes the body's most positive messages will be delivered in silence. When your body ceases to complain about the abuse of processed foods, it's easy to forget how quiet it's being. For instance, if you eat a satisfying, nutritious breakfast based on fresh fruits and whole grains, the chances are very good that you won't feel that ravenous mid-morning hunger or the coffee-break blues. The problem is that most of us don't take time to say, "Gee, I don't feel hungry and drowsy!" We just go on with our work. Actually, this body silence is very good; it means you're working to your full potential, even though you may not take note of it at the time.

Also, there are some transitional effects that many people experience when they first switch to natural foods. Many people are so used to the fake taste of artificial foods that they may find natural flavors somewhat strange. Since they've been taught to reject the unfamiliar, they may not even like the taste of natural foods at first. It takes time to adjust to the natural sweetness and the subtle flavor of real food, but once you do you won't go back.

People who have lived on low-fiber foods may also experience some unpleasant transitional effects when they switch to high-fiber, natural foods. Since their digestive systems are not used to handling any real bulk, and since their intestines are so clogged with impacted fecal matter, they may experience a bloated feeling if they immediately raise the fiber content of their diet. If this happens to you, it's a sign that you should slow down, increase the fiber content gradually, and give your system time to adjust.

Probably the most annoying transitional effect is simply having to change our expectations of what food should be like. Since we think that "normal" bread must be soft and gummy, we are shocked by bread that has some texture and bulk. If we've learned to like our vegetables mushy, it takes time to get used to them lightly steamed or microwaved. Don't worry, though — you'll soon adjust, and realize that there are hundreds of exciting new eating experiences in store for you.

When you adopt a natural lifestyle, you'll soon make another discovery: The supermarket can be a dangerous place. The shelves are taken up by so much junk, you'll wonder if anything is safe to buy. So protect yourself — become a compulsive label reader. Once you start checking the labels of those cans and boxes you've been absentmindedly tossing into your shopping cart, you'll see for yourself how widespread the Food Giants' addictive poisons really are, and you'll get some idea of what to avoid. Do most of your shopping in the produce section.

Actually, it's best to start out by avoiding almost all processed foods of any kind. You already know

about those ingredients listed on the package that can kill you. But what are really dangerous are those additives for which the government requires no labeling at all. Your bread, for instance, can contain oxides of nitrogen, chlorine, nitrosyl chloride, chlorine dioxide, benzoyl peroxide (better known as the active ingredient in a famous acne medicine), acetone peroxide, azodicarbonamide, and even plaster of Paris, and the manufacturer is not obligated by the Code of Federal Regulations to warn you of these. Nor is bread the only product that can have hidden additives. When General Mills began packaging Tang, they had trouble getting it to empty quickly enough from high-speed mixers into bottles. They found that there was one additive which could speed up the packaging process substantially: silicone. General Mills went to the FDA and asked if they had to list silicone as an ingredient on the label. The FDA told them not to worry; as long as silicone comprised less than 3% of the product, there was no need to list it. Now, as far as medical science is able to determine, there is nothing harmful about drinking silicone — it should pass right through the digestive system. But who really knows?

Has anyone ever done a study to determine the effect of small doses of silicone taken over 20 or 30 years, or even a lifetime? We know now it's not safe as an implant. Why add any chemical not absolutely necessary for human nutrition? And shouldn't we be told about the presence of any artificial additives in our food no matter how "benign" they are thought to be?

One hears a lot of talk these days about the Delaney Clause, a section in the American Food and Drug laws that requires a manufacturer use no additive which has been shown to cause cancer in laboratory animals. Many people say the Delaney Clause is too tough, but I maintain it doesn't go nearly far enough. Food manufacturers should be required to show that an additive will actually be beneficial to human health before they are allowed to use it in their product. There is no reason to think that the tons of exotic chemicals dumped into our food supply should be considered innocent until proven guilty. After all, human health is at stake.

I know from my years as a food manufacturer that the physical volume of labelled ingredients in products matches the descending order listing on the packages. And I seriously doubt that any inspector is doing this for all products, because I have never heard of any company being fined for lying about how much of certain ingredients are in their products. Of course, the FDA has reason to despair of ever keeping close tabs on the content of most processed foods; the ingredients change so frequently that it would be impossible to keep up with them all. Nevertheless, the consumer has to face up to the fact that if he eats any processed foods — even the "safe" ones — it is at his own risk.

This danger even extends to some of the new, so-called "natural" products with which the Food Giants themselves have swamped the market. Sensing the growing wave of public suspicion toward processed foods, the food industry has found devious ways to call highly processed garbage "natural." Take, for instance, Langendorf Natural Lemon Flavored Creme Pie. This product (which, by the way contains no cream) is doped with sodium propionate, artificial food colors, sodium benzoate, and vegetable gum. How can it possibly be called natural? Because, the company explains, it's got real lemon oil in it. There's Lever Brothers' Autumn Natural Margarine, an irony in itself because margarine is completely created from vegetable oils and chemicals. Then there the "natural granola" snacks and cereals (such as Quaker 100% Natural Cereal), that are heavily sweetened with brown sugar and laden with hydrogenated fat. Many people are under the impression that brown sugar is a less refined, more "natural" sugar, but this is not the case. Brown sugar is a highly processed product. Real brown sugar, which is a mixture of sucrose and molasses, is much sweeter than white sugar, so less is needed to make a product sweet. Because of this, brown sugar can be quite beneficial if used wisely, although it can still be dangerous if overdone. But much of the brown sugar on the market is just white sugar with artificial brown coloring, and this can be just as deadly as pure sucrose.

Artificial coloring is also a prime ingredient in many of the so-called "wholewheat" breads on the

market. In reality, the whole-wheat content in these breads is usually quite low, and most of their bulk is made up of refined white flour. The end result is perfect for duping the shopper. It has the soft, gummy texture they've been trained to like, but it has a nice brown color to make them think it's good for them. The FTC has proposed doing something about this sort of fraud, but no action has been taken as yet. In the meantime, don't take a product's claims of being natural at face value. Read the label; if processing has not been kept to a minimum, and if there are any additives not absolutely necessary for human nourishment, it's not natural.

It's best to be as wary as you can of "buying clubs" for fresh fruits and vegetables,

Supermarkets which sell "cheap" produce usually buy merchandise that has been picked before it's ripe and then stored in a warehouse until the market is right. Such produce has lost a great deal in nutritional content, and it must be doctored with waxes, dyes and other chemicals to give it a fresh appearance. As biochemist Robert J. Benowitz puts it, "These warehouse impostors are a kind of subtle junk food that delivers 'empty' calories as surely as the processed kind." 3

Not all supermarkets play this kind of game. Some of the better ones go out of their way to find ripe produce, and have it rushed by truck or flown in to their stores to insure maximum freshness and best nutritional value. Such produce is very good for you, but you must pay a higher price for it. Cheap fruits and vegetables are no bargain.

Your best bet for food is to grow it yourself. In the winter months, be sure to buy frozen produce rather than that which has been canned or otherwise processed. Buy your whole-wheat bread from the nearest baker who produces it. Breads which must be shipped long distances may also contain chemical preservatives.

If you must have meat, it's a good idea to buy branded meat that has been kept frozen. That way, you can avoid the nitrites found and other additives found in processed meat, and usually save some money in the process.

You needn't despair of the supermarkets, either. Grocers tend to be very sensitive to public desires — that's how they stay in business. If enough people demand whole-grain breads, flours and cereals and the freshest possible produce, they're sure to see some results. It was just such badgering that had supermarket buyers in three states clamoring for my products. Citizen action does make a difference, so don't be afraid to speak out.

To stick to a natural diet you have to become independent, skeptical and alert. That's not easy for some people. They've let the food manufacturers make their food decisions for them. But if we are to escape the exploitation of the Food Giants, we must learn to think for ourselves and rely on our own judgments about what's right for us. Ralph Waldo Emerson said self-reliance leads to self-respect. He might have added that it also leads to good health.

After you've been on your natural diet for a while, you can begin to determine whether you still need vitamins or other food supplements. That's right, I said "after." There's no way, while you're still living on processed foods, that you accurately determine your body's extra nutrient needs. The reason is simple, we've said before, each nutrient affects the way the body uses every other nutrient. For instance, vitamin E enhances the activity of vitamin A. Two B-complex vitamins, choline and inositol, work together to utilize fats and cholesterol. On and on it goes, each vitamin and mineral needing other vitamins and minerals to work properly. In addition, some ingredients frequently found in junk foods — such as caffeine — actually work to inhibit the effectiveness of certain nutrients (especially the B vitamins). Only when you're on a diet of nutrient-balanced whole foods will each nutrient be able to do its full share of work. Not only will your vitamin deficiencies be

fewer, but you'll have an easier time spotting where those deficiencies lie.

Even after they have adopted a natural food diet, many people still find they need more of a certain nutrient than they can get from food. If I wanted to get my personal vitamin C requirement from oranges, for instance, I'd have to eat 100 a day! Many of these special needs come from the abuse our bodies took when we were still hooked on junk. Others come from the special problems of modern living: air pollution, too much stress, the use of oral contraceptives, and so on.

If certain undesirable symptoms still linger on after you've gone natural, it's probably a sign that you still need a food supplement. For instance, if you continue to have a high incidence of colds, allergies, infections, cold sores, or other diseases of the mouth or throat, you may need more of vitamins A and C. A persistent sense of nervousness, tension and unease may be a sign that you need more of the B vitamins (nor would this be very unlikely; studies have shown the American diet to be deficient in the B-complex vitamins.) If your hemoglobin level is low and you feel tired all the time, it's a pretty good indication that you need to take more vitamin C so you can absorb the iron in your food. You probably don't need to take more Iron.

There are other signs to watch for. If you're not getting enough vitamin A, you may be plagued with skin problems: rashes, pimples, etc. If you have chapped lips, you need more Omega-3. Flax is the best source. If you suffer from muscle spasms, it could be a sign that you're low in calcium or magnesium. Hair loss can be a sign of inositol deficiency, and circulatory problems can indicate a lack of vitamin E. There are many other signs of vitamin deficiency, and I recommend that you read one of the fine vitamin books I have listed in the back of this volume.

Many people are puzzled about whether to take synthetic food supplements or "natural" food supplements.

Natural food supplements are much easier utilized by the body. Whatever type of supplement you take, be sure they will break down in a glass of water. Hard shelled vitamins are worthless.

Just as only you can determine your best diet, only you can determine the food-supplement dosage you need. Your supplementation level depends on your individual situation, and the best way to determine that level is to depend once again on body wisdom. You should take a careful, trial-and-error approach to nutrient dosages. Let me turn to vitamin C once again for an example. Most Americans don't get nearly enough complex vitamin C with bioflavonoids. It's used for many things in the body, from helping in the formation of collagen to fighting off blood clots, and it aids in the absorption of other nutrients as well, especially iron. When taken with iron-containing food, I feel a person needs at least 3,000 mg of complex vitamin C a day, and some with special requirements should have up to 10,000 mg. You should begin to determine the dosage you need by starting out with 1,000 mg a day, spread out in two or three dosages to maintain absorption throughout the day. By the way, it's a good idea to take all of your vitamin supplements with meals throughout the day. This way, you give your body nutrients at the same rate your body uses them. If you take your whole day's supplementation in one dose, your body will simply excrete what it can't use at that moment. If the initial complex vitamin C dosage makes you feel good, increase the dosage until you no longer notice improvement. Then cut back to the last level in which you noticed improvement, and you've found your proper dosage. But don't think the amount you need will remain stable; chances are you'll have to adjust it continually throughout your life.

Once you've determined the right diet for you, and have made up any special deficiencies with food supplements, you'll be well on your way to a healthier, more exciting, more natural lifestyle. You'll have escaped the addictive grasp of the Food Giants, and be clear of the life robbing effects of processed foods. You'll know the joy of being fully functional, fully alive. And you'll have many

enjoyable, active years of that life left to live.

The next chapter details how to change your life in one easy step at a time.

## NOTES

1. R.K. Chandra, "Effect of Vitamins and Trace-Element Supplementation on Immune Response and Infection in Elderly Subjects." *Lancet*, Vol. 340, Nov. 7, 1992, p. 1124-1127.
2. Barbara J. Reed, "Food, Teens and Behavior." Natural Press.
3. Roberta. Benowicz, "The Age of Vitamins," *Family Health*, September, 1988, p. 30.

## 6. HELPING YOURSELF

Everyone gets sick now and then — even natural-food fans. An individual may have a genetic predisposition to a disease, or he may come in contact with a contagious disease too strong for his natural defenses, or he may just push himself too hard. Whether it's cancer or the common cold, sickness or injury can strike you no matter how well you eat. What's important is how you deal with your problem, and how you get yourself on the road to wellness.

Unfortunately, most people today cannot cope with sickness. At the slightest sign of an ailment, they reach for the pill bottle. If that doesn't help, they run to the doctor and beg him to do every test that he can think of and prescribe something, anything, to make them well again.

The total cost of medical care in America is expected to reach one trillion dollars by 1994. For 250 million citizens, this amounts to \$4,000 for every man, woman and child in America. Luckily, most of it does not come directly out of our paycheck but indirectly it does. Nearly half of this money is spent in the first few years of life and the last few years, with government paying a large share of these costs. Medical costs are expected to continue to rise at a rate of 15 — 20% per year, as they have for the last decade.

America is heading for a collision with its destiny. No individual, no company and certainly our government cannot continue to pay for skyrocketing sickness care cost. Health care is not the problem— sickness care cost is. Health care is free to everyone because it's cheaper to eat healthful foods than junk foods. Let me repeat the cost of health care is not the problem. The problem is the medical cost of disease care. We hope that this book will help decrease degenerative diseases, and thus cut medical costs. Our death rates from degenerative diseases are almost the highest in the world.

Our rate of death from major cardiovascular diseases rose from 359 per 100,000 at the turn of the century to 440 in 1978. Our rate of cancer mortality more than doubled in the same period of time, while the diabetes mortality rate rose 25%. The rate of increase in deaths from cancer is a far larger problem than deaths from heart disease. It's clear that our slavish devotion to the disease establishment is foolhardy.

While I don't want to condemn the entire medical profession, I do believe that self-reliance is of primary importance in combating sickness or any physical problem. We must take responsibility for our own well-being, rather than blindly trusting the physician to patch us up or give us a pill when things go wrong. I think a few of my experiences with the medical establishment will help to illustrate the value of self-reliance. During the years when I was working for Quaker Oats, I had an experience with hospital care that profoundly affected my outlook on medicine. One evening at work I was sprayed all over my back with extremely hot liquid. I was rushed to a hospital with

second-degree burns over 25% of my body. All the emergency staff did was pack me in ice, which helped to minimize the burn and ease the pain. I fitfully awaited the morning, when I thought a doctor would surely see me.

The morning came, but no doctor appeared. Instead I was brought a skimpy breakfast, the main entree of which was Jello. The whole meal was high in sugar and low in the protein my body so badly needed. I waited the rest of the morning for a doctor to show, but in vain.

The lunch they brought me was just as unsatisfactory as breakfast. I was given one paper-thin slice of turkey, a carton of milk, white bread, and vegetables with the life boiled out of them. I began to realize that a continued diet of hospital food would do me more harm than good.

Late that afternoon, the doctor finally came to see me. He looked me over, and I asked him what he was planning to do. He replied that there was nothing he could do except to keep me on clean sheets and occasionally apply a salve. Nevertheless, he recommended that I remain hospitalized.

Then I complained about the diet. I said that, because I had lost so much skin, I thought I should be getting a high-protein diet to aid my body in replacing the tissue. He disagreed. He told me that my body had its own protein stores on which it could call. I later found out he was talking about a temporary body-storage facility called the amino acid pool, which can be depleted in two hours!

I began to get angry. I told the doctor that if all his medical wisdom could offer me was clean sheets and lousy food, I would rather go home and treat myself. I was checking out.

I went home and kept myself on clean sheets, changed my shirt frequently, and was careful not to lie on my damaged back. I ate whole grains, eggs, a little lean meat, and other high-protein foods. So great was my skepticism about the hospital's course of treatment that, before I applied the salve on my back that the doctor had prescribed, I tried a little on my arm. Before long, that area of skin darkened with a red, ugly, irritating rash. I threw the rest of the jar of salve away.

In short, I gave my body the time and material to heal itself, and it did a beautiful job. Instead of staying in the hospital for two weeks, as my doctor had planned, I was back at work in two days. I made up my mind that from now on, I was going to take the doctor's advice as a guideline, not as the gospel truth.

Perhaps one of the most famous examples of the role of self-responsibility in health is the case of Norman Cousins, which he describes in his book, *Anatomy of an Illness*.<sup>2</sup> In 1964, Cousins, editor of the *Saturday Review*, contracted ankylosing spondylitis, a collagen illness in which the connective tissue in the spine disintegrates. He gradually lost the use of his limbs and could scarcely turn his neck. Hard nodules formed under his skin. At the low point of his condition, his jaw was almost locked.

His doctors were generally pessimistic. They told him that the disease was degenerative, and he had just one chance in 500 of surviving. With seemingly nothing to lose, Cousins decided to take things into his own hands.

Cousins studied the causes of collagen deficiency. He was surprised to learn that many painkillers inhibit collagen production and contribute to the degeneration of connective tissue. Two of the most dangerous in this regard were aspirin and phenylbutazone, both of which his doctors were administering to him in massive doses. He went off the drugs immediately.

Cousins also learned that vitamin C is very beneficial in collagen production. Over his doctor's

protests, he began to receive continuous intravenous dosages of vitamin C, starting with three grams a day and building up to 25.

Finally, Cousins knew that negative emotions could have a harmful effect on the body. If this were so, why couldn't positive emotions have a beneficial effect? He decided to give it a try. He got hold of a movie projector, and started to give himself several daily doses of laughter by watching "Candid Camera" reruns and Laurel and Hardy films. Sure enough, the laughter helped to ease his pain and permitted him to sleep more frequently.

Instead of dying, as his doctors expected him to do, Cousins began to recover. Slowly, he began to regain control of his fingers, his hands, his arms. Eventually he was able to walk on crutches, then with leg braces. Cousins became virtually free of the disease, and travelled around the country preaching the tremendous importance of patient self-reliance.

A friend of mine is a nurse who constantly tries to help people in the hospital and nursing homes avoid unnecessary medical testing and pill-popping. Her husband noticed one day that he had gangrene on his foot. His feet had felt cold for years from poor circulation.

My friend took him to her favorite doctor, who usually avoided unnecessary medical procedures. The doctor decided to do a Doppler test to see if he had a circulation problem. The results came back — no problem. Then he did a heart circulation test; again, no problem. Then he did a stress test again; the doctor said the results were negative, that her husband did not have a circulation problem.

My friend was furious, because she knew her spouse had a problem. She said, "Doc, take off his shoes and socks and feel his feet." The doctor did, then said, "I guess he's got a circulation problem. You'll have to keep his feet warm, since we don't have a drug to treat this problem." For this advice they were billed \$2,000.

My friend will never go to that doctor again. She realized the tests were a gimmick to make his wallet fat. The results of the test were inconsequential because they wouldn't change the treatment method, regardless of the tests' results.

My friend had been made into a fool by the medical profession. You will be too, many times in your life, if you don't always ask many questions. Questions like: What will it cost? What good will this test do? What various treatments are available?

When do you stop treatment? Is the work guaranteed like my car's mechanic's work? You are paying the bill and have the right to ask many questions.

I want to be very clear about this. I am not saying that doctors are incompetent or obsolete, nor am I maintaining that one need never seek medical care. No, the medical establishment isn't bad — it is simply limited. Your doctor may act on his own vested interest. Your doctor has no magic pills or potions that will make you feel good if you refuse to take care of yourself. The only way you can stay healthy is if you take responsibility for your own health and your own medical costs. This means eating right, getting enough exercise, and doing all the other things which will keep you from getting sick. It also means exploring your options fully when you do get sick. Above all, it means asking first not what your doctor can do for you, but what you can do for yourself.

What are the specific limitations of the medical establishment?

Well, the first and most important is the tendency to work on the level of the symptom instead of

curing the cause. You go to the doctor with a recurring headache, or persistent indigestion, or an ache in your joints, and you expect him to give you a pill (or an injection, if things are really serious), that will take away all your discomfort. So you take your pill, and you feel fine, or at least you think you do. You're happy, your doctor's happy, but your problem hasn't gone away. In fact, while you've been ignoring it, it most likely has gotten worse.

Most of all, we want the doctor to give us something. We don't feel treated unless we've been given some sort of medication, and the doctor obliges — usually with an inorganic chemical. Now, if the problem is due to something foreign to the body, like an infection, then these chemicals, for instance antibiotics, can be quite effective (although even antibiotics are overprescribed; one woman told me a doctor had given her grandson an antibiotic after he had swallowed shoe polish!). If the problem is related to some sort of nutrient deficiency, however, all the synthetic chemicals in the world aren't going to solve the problem. The best they can do is take away the symptoms.

But they don't even do a very good job of that. Take, for example, a very prevalent complaint among Americans: extreme tension and nervousness. As we've seen, the hypertense individual is probably deficient in one or more of the B-complex vitamins, and usually eats too much protein, fat, salt and consumes too much caffeine. When she goes to the doctor, chances are good he doesn't ask anything about her diet and probably doesn't care. He just prescribes a tranquilizer; Valium is a big favorite, although there are plenty of others. So she takes the Valium, and it does indeed have a calming effect. But it has a lot of other effects as well. It makes her feel groggy, out of it, and just not herself. Her sleep is neither deep nor refreshing. When she wakes up, she feels drugged, and may need an amphetamine (which the doctor is only too happy to provide) to get her going again. Then she'll need another one, because she still has a vitamin deficiency. No amount of tranquilizers will repair a vitamin deficiency.

An investigation conducted by the Milwaukee Sentinel a few years back will serve to illustrate how overeager doctors are to hand out medicine. A Sentinel reporter received a physical examination from a doctor, and was found to be in perfect health. He then went to scores of doctors in the Milwaukee area, and complained of a sore throat.

The results of the study were shocking. The vast majority of the doctors confirmed that the fake sore throat was indeed real, and they prescribed dozens of different medicines for it. A few gave him antibiotics, and a couple even tried to have him hospitalized! Only a handful had the wisdom to say, "No, I don't see anything wrong. You're OK; go home." After the test, the reporter had himself examined privately again. Sure enough — he was still in perfect health.

You also gain distrust for the medical establishment when you learn how often they change their recommended "cures." Two hundred years ago, the favorite treatment was bloodletting. Surprisingly, the treatment worked in many cases. Bleeding is no longer in favor with doctors, but it has been replaced with treatments just as untenable. As recently as a decade ago, doctors all over the world were recommending a low-fiber diet for diverticulosis and colitis. Then, some five years ago, medical scientists in Great Britain declared that it was high-fiber, not low fiber, which was the cure for these intestinal diseases. Although the high-fiber theory was harshly criticized at the time, most doctors in this country today feel that it's sound medical advice.

A more familiar example of the 180-degree turns of which medical science is capable is that of cholesterol. In the early '70s, people were warned that cholesterol was the primary cause of heart disease and should be avoided. Predictably, a multitude of new, low-cholesterol products crowded the supermarket shelves. In May, 1980, a report by the Food and Nutrition Board in Washington, D.C., declared that there was no satisfactory evidence linking dietary cholesterol with serum cholesterol, and that cholesterol presented no danger to the average healthy individual. Several

years and millions of bottles of no-cholesterol vegetable oil after its first announcement, the medical establishment has come full circle.

Examples like these make it clear that we've got to take a new, more cautious attitude toward medicine and health care. We've got to learn that in order to feel well, we have to live well by eating fresh vegetables, fresh fruits, legumes, whole grains, seeds, and drinking 7-8 glasses of good water daily and exercising. This simple formula will pay dividends.

With all this in mind, how often should a person seek medical treatment? The answer is a conditional one. People who are on a whole-food diet are generally in tune with their bodies. Since they don't abuse themselves with junk food, they know how well they should be feeling.

They've studied their own health, and paid attention to their own physical reactions. Consequently, when they're not feeling well, they can tell whether it's something serious that requires a doctor's advice. They realize that they themselves are limited, and that there's only so much they can do for themselves with good diet and food supplementation, within the wellness concept. They know that they are not omnipotent, and so they will seek medical care when they become aware that there's something significantly wrong or different going on in their body.

People who live on junk food and pay little attention to their bodies can't tell if they're really sick. Half of them run to the doctor with every little complaint, and the other half doesn't seek medical attention until they're nearly dead. So I would suggest first of all that you get in touch with yourself by adopting a healthful, careful, whole-foods diet. Then you'll be able to tell how much medical attention you need.

If you do decide to go to a doctor, treat him as you would a used car dealer—with caution. If his diagnosis is serious, don't be afraid to get a few more opinions. Chances are, you'll find that your prognosis is not as cut and dried as your doctor would have you believe.

The kind of doctor I recommend is one who will sit down with the patient and talk candidly about the problem. He will discuss the various alternative treatments and the effects of those alternatives, so that the person can decide for himself. The ideal doctor is not one who says dogmatically "This is unquestionably what you've got and my suggested treatment is the only way it can be cured." Instead, the best doctor treats the patient as a partner. Together, they will find a way back to health.

If you've been going to the same doctor for several years with the same complaint, and that doctor has never once asked you about your diet, then it's time to change doctors. A good doctor recognizes that nutrition is the foundation for good health, and he will insist on doing a complete nutritional profile on each patient. If the patient shows several symptoms of hypoglycemia, the doctor will order a glucose-tolerance test. The best doctor knows that his patients will never get well on junk food.

It is most encouraging to see that more and more doctors are becoming nutrition conscious. With luck, the coming years will see even more extensive reforms of the medical industry, reforms which can only help physician and patient alike.

People in a special situation, be it a serious ailment or an unusual lifestyle, need a special diet. Whenever I appear on radio or television, I'm most often asked questions like "What should I eat if I want to lose weight?" or "What vitamins should I be taking if I have heart trouble?" It's not surprising that people should be interested in such topics; after eating themselves into trouble, they search anxiously for someone to show them the road back to health.

Unfortunately, just as there exists no one "average" physical condition, there is no one "perfect" diet to solve every problem. Furthermore, a full discussion of all the factors that can go into determining a corrective diet for some condition would require volumes, and indeed many fine volumes have been written. But it is possible here to point out some of the major recommendations I have for people with common complaints.

Of course, the most burning question in the minds of most Americans is "How do I lose weight?" And no wonder— obesity strikes more than half of all Americans as they get older. Every year hundreds of new diet books flood the bookstores and supermarkets, yet most people end up heavier one year after starting a new diet than they were when they began it. What's going wrong?

The problem is that there's no quick fix for a weight problem. If it's taken you years of overeating to reach the weight you're at now, there's obviously no reason to expect to become slim again in a matter of weeks. Nor is there some temporary diet you can go on that will solve your problem for very long. Obesity is a way of life. Slimness, too, must be a way of life.

There's really very little advice one can give an overweight person about food that doesn't apply to everyone else, no matter what their condition. Those who wish to lose weight should simply eat less fat. They should eat whole, natural foods, fresh fruits, vegetables, whole grains, legumes, etc., that will satisfy them with fewer calories, and they should try conscientiously to control their cravings for junk.

Obese people should eat plenty of high-fiber foods. Because low-fiber foods move very slowly through the digestive system, the body has lots of time to absorb every last calorie from them. Foods that are high in fiber move more quickly through the digestive tract, thus leaving up to 20% of the calories in the food. Besides, an increase in fiber content makes food more filling.

Aren't whole-grain products higher in calories? Not really, despite what the calorie charts may tell you. When most foods are tested for caloric content, they are simply burned, and the resultant heat is measured. The problem is that when you burn whole wheat, you also burn the bran, which is not digested. Thus a laboratory test will show more calories in wholewheat bread than are actually available to the body.

In addition to whole, natural, high-fiber foods, you'll want to make sure that you get plenty of certain vitamins and minerals that help the body burn fat. Linolenic acid (LNA) helps to burn saturated fats, as does iodine. Inositol can aid in the redistribution of body fat. LNA is found in flax and canola oil, walnuts in the shell, dark green leafy vegetables and cold water fish. You can get inositol from dried lima beans, cantaloupe, grapefruit, wheat germ and peanuts. Kelp is a good source of iodine.

But diet is only one part of weight loss, and I'm afraid that many dieters lose track of this. Not only must you modify your diet to lose weight, but you must also increase your level of activity. When you merely fast, the first cells to be taken out of storage are the protein cells, not the fat cells. When you mix proper diet with moderate exercise, you use up fat cells instead. So the key to successful weight loss is to eat less, eat natural, and get active.

One thing you should avoid is diet foods. Not only are they a nutritional disaster, they're a rip-off as well. The reason is that, in this country, a product labelled as a diet food must contain 40% fewer calories per serving than the food it replaces. Now this sounds good, but the real catch is that phrase, "per serving." What it means is that if the manufacturer can put less real food into a serving, he can market his product as a diet food. For instance, diet cheese has more air and water pumped into it than regular cheese, so that each serving really has less cheese in it. Similarly, they take a loaf

of bread and slice it twice as thin as normal (they may also add some sawdust to give it some calorie-free bulk). Then they announce jubilantly that their new diet bread has only half the calories per serving as regular bread. "Light beer" has more water in it than regular beer. Then, to add insult to Injury, the Food Giants have the gall to charge substantially more for these flimsy "diet foods" than they charge for their regular products!

The sad truth is that diet foods are heavily processed and very nutrient-poor. Diet foods only make you hungrier. Instead of wasting your money on them, invest in satisfying, nutritionally-balanced natural foods.

Diabetics are given all sorts of diet advice, but most of it is either unbalanced or just plain foolish. Diabetics are taught to concentrate on the carbohydrate content of their meals, but this is really only a small part of the story. The diabetic's problem is that sugar is absorbed too quickly into the bloodstream for a ruined endocrine system to handle. It's obvious, then, that foods with a high-fiber content will aid the diabetic in utilizing sugars more effectively. Since high-fiber foods allow for slower sugar absorption, a diet of such foods will spare the diabetic the fast-absorption shock that low-fiber foods can bring.

Secondly, people with diabetes should be very selective about what kinds of carbohydrates they eat. They should avoid the simple, quickly-absorbed carbohydrates, such as sucrose and lactose monosaccharides. In fact, many diabetics who have gone on a sugar-free diet have found that they could substantially reduce their daily insulin requirement. Diabetics should emphasize the complex carbohydrates, such as the starches found in whole-grain breads, squash, whole potatoes, and so on. For both high-fiber and complex carbohydrates, natural foods are the best prescription.

Diabetics should be sure to get plenty of chromium in their diets, because the mineral is important in the metabolization of sugar. Brewer's yeast, whole wheat and chicken are good sources of chromium. Zinc and potassium, two minerals that are frequently lost in food processing, are also important for diabetics.

Many people who suffer from diabetes are put on high-protein diets. Doctors reason that, because protein is digested more slowly than the simple carbohydrates, that protein is therefore more easily handled by the diabetic. And it's true that protein is used gradually by the body, although not as gradually as are the complex carbohydrates. The difficulty is that, for Americans, protein means meat, and meat has a very high fat content. As a result, most diabetics end up on a high-fat diet, and not surprisingly, they also end up with heart disease. Diabetics should recognize that they need no more protein than other people. Instead, they need the complex carbohydrates and high fiber found in vegetables and fruits. It is important to eat small meals of whole, unrefined foods so the system is not overloaded. Five or six small meals are much easier on the body than three large meals daily.

One of the most psychological problems that besets diabetics is that their diet is always thought of in terms of restrictions. "No more candy," they are told, "no more soda, no more sweet desserts, no more sugar in your coffee." They begin to feel persecuted, penned in, and usually end up "cheating." What these individuals need to learn is that there are many, many foods they can eat, foods that are delicious and satisfying, foods that will help them back to wellness. The fact is that the dietary suggestions I have for diabetics are ones from which everyone can benefit.

Heart disease is one malady for which I strongly recommend a doctor's regular advice. An important point here is that, while there are many things an individual with heart trouble should be doing, it is important that he do them gradually, so as to avoid putting too much stress on his system. A good doctor can let you know when you're going too fast or, importantly, when you're going too slow.

But here, as always, it is crucial to find a doctor with nutrition consciousness. Your doctor should realize that a good nutritional program, stressing whole fruits, vegetables, seeds and whole grains can do wonders for the heart-disease patient. Secondly, you should avoid doctors who rely on nutritional absolutes. If he tells you that eating eggs caused your problem and forbids you to eat another one, write him off. If he says that you absolutely cannot ever have another gram of salt in your diet, find another doctor. Such dietary extremes are not necessary for recovery, and have never been shown to help heart patients. Count grams of fat and keep the total to no more than 15-20% of your diet — or about 40-50 grams of fat daily. Eat no fried foods and let your fat be from natural sources such as seeds, nuts in the shell, virgin olive oil and an occasional avocado.

Don't be afraid to "shop around" for the right heart specialist. Check out his bedside manner; is he calm, relaxed and efficient? Or is he anxious, rushed, and always late? If he has a helter-skelter way about him, you know he's probably a prime candidate for a heart attack himself! Talk to the patients he's treated. How many have survived and have gotten better? How many grew worse? How many are dead? Checking a doctor's success rate is one of the best ways to discover whether his advice will help you.

Find a heart specialist who stresses 7-8 glasses of pure water daily and exercise — one who, in fact, insists on it. No heart patient can possibly recover unless he begins to rebuild his cardiovascular system through moderate, careful exercise. Any doctor who lets his patients off easy when it comes to exercise is doing them no favor.

There are many vitamins and minerals that help the body cope effectively with stress and also aid in fat metabolism, and these will be of great help to the heart patient who is trying to clear his circulatory system of cholesterol build up. Among them are Omega-3, magnesium, manganese, molybdenum, lecithin, and the B vitamins. The best way to get all of these is —you guessed it—to eat a balanced diet of whole, natural foods, with supplementation, if necessary.

Cancer is a very controversial disease. No one is sure of its cause, and there is no cure that has been shown to be 100% effective. Nor is a special diet always a cure. But it's clear that many cancer patients have been helped by a wholefoods diet. Some have actually gone into remission. Quite a few such cases have been seen among those on the "Laetrile diet," and most doctors believe the diet is more effective than the laetrile itself. People on the diet eat everything raw—raw fruits, raw vegetables, sprouts, etc. Thus they are assured of getting the fullest possible supply of nutrients to help their bodies fight the disease. Even when they are not cured, cancer patients who have gone on a raw-foods diet have at least been more comfortable and functional and have lived longer than those who remained on junk foods. The real answer is to consume whole foods (as nature grows them) to help prevent the tumors from developing in the first place. Prevention is much more practical than trying to cure full blown cancer. Megavitamin treatment often has helped in cancer cases. Dr. Linus Pauling has been especially successful in treating patients with massive doses of vitamin C, which have been very helpful in prolonging the lives of cancer victims. And scientists believe that the mineral selenium, found in whole wheat, can actually inhibit the action of carcinogens in the bloodstream.

But most importantly, if a high-nutrition diet can be helpful in curing cancer, think how wonderfully effective it must be in preventing cancer. Once cancer is contracted, it is very difficult to reverse. But if you start today to get your body in the best possible condition with a natural-foods diet, cancer may never steal a single year from your life.

It's very important that a pregnant woman give her unborn child the very best nutrition. The supply of nutrients the child receives as its tissues are first forming will affect its physical and mental

development throughout its life. Undernourished babies, especially one's that don't get enough Omega-3, often end up with heart trouble later in life. And it is very important that the delicate process not be hampered by poisons. Every year a new processed-food additive is found to be harmful to fetal development. In addition, poisons secreted from decaying compacted fecal matter in the mother's intestine can hurt the child. This is why it's terribly crucial that the mother start from day one to eat high-fiber, organically grown natural foods. Cigarette smoking and alcohol and caffeine consumption should be cut out entirely. The woman should exercise as long as she can — it will ensure a better blood supply to the child, and make the delivery much easier. In fact, it's a good idea for a woman to get herself in good shape as much as a year or two before she plans to become pregnant, so as to give her child the best possible start in life. My recommendation for a natural fresh whole foods diet is doubled for the pregnant lady. The elderly should realize that their ability to absorb all of the nutrients from their food is greatly diminished as they grow older. They simply cannot help the fact that their digestive systems are not as efficient as they once were. You can't turn back the clock, but you can eat foods that are as high in nutrient content as possible. It is especially important not to fill your diet with high-sugar/high-fat food; it will rob your body of the nutrients you're trying so hard to utilize.

As a person grows older, he does less work and is less active, and so his calorie requirement diminishes. Unfortunately, his old eating habits remain and obesity is usually the result. Senior citizens must be careful to limit their calorie intake while ensuring a good supply of nutrients. The answer, of course, is to eat natural foods.

Exercise is also very important for the older person. Nowhere is it written that you must stop being active after you retire, and a moderate exercise program will keep you feeling wonderful and add years to your life. Careful, though; your endurance goals will have to be more modest than those of a younger person (though not too modest), and you'll have to approach them more gradually. But don't let that discourage you. Natural foods and moderate exercise will keep you alert and feeling young for many, many years.

Athletes are prone to many false ideas about diet. They are told to eat plenty of meat for protein, and to eat lots of sugar for "quick energy." In fact, Gatorade, a drink marketed especially for athletes, contains enormous amounts of sucrose and glucose. By now, of course, we've seen how fraudulent such prescriptions are. Meat is an inefficient source of protein, and too much protein can create a buildup of toxins in the bloodstream, and can cause the body to lose calcium in the urine. Sugar can also sap the body's strength and assault the endocrine system.

What athletes need is a sensible, natural foods diet. They should especially emphasize fruits, because fruits supply potassium that they lose when they perspire. Also, fruit can deliver a fine pick-me-up when the body is tired and nutrient-depleted. Whole-grain breads will provide them with all the right kinds of protein and vitamins they need for good muscle maintenance. Remember Jim Fixx, the guru of marathon runners a few years ago, who said runners could eat all the junk food they wanted. Well, he died of a heart attack while running. That should prove that even long-distance runners have to be careful about what they eat. So remember, athletes: Fresh, whole natural foods are the real breakfast—and lunch and dinner — of champions.

After reading a chapter such as this, you may be thinking, "This fellow Stitt sounds like a broken record! Can't he say anything but 'natural foods'?" Actually, no one should be too surprised that I recommend natural foods for so many different types of people. Although we are all biological individuals, our metabolic processes — in fact, the metabolisms of all animals — are almost identical. I suppose the disbelief in the curative power of natural food comes in part from the fact that we're accustomed to miracle drugs and high-technology treatments for our physical problems. We like things to be complex and exotic. We tend to laugh off simple solutions.

Well, natural foods aren't complex or even very exotic, but they are exciting. They are the key to the proper functioning of the human body. Fresh, whole natural foods can help you fight off disease, improve your memory, lose weight, rev up your sex life, and get everything you deserve from life. They're cheaper, more sensible, and even more convenient than the processed, poisoned fabrications you've been getting by on all your life. Yes, I think whole, natural foods, in all their variety, are really something to shout about, and I've dedicated my life to doing just that.

This, then, is my ultimate prescription: I want you to start today to take control of your own life, your own diet. Fight back against the Food Giants. Say "no" to their plan to trap you into physical addiction and economic slavery. Explore all the marvelous food experiences you've never dreamed of, and rediscover the true Joy of eating. I want you to begin, right now, to live.

## NOTES

1. "Average of Annual Death Rates for Selected Causes," 1980 Information Please Almanac, p. 810
2. Norman Cousins, *Anatomy of an Illness* (New York: W.W. Norong & Company, 1979).

## 7. TEN EASY STEPS TO BETTER HEALTH

You can totally change your lifestyle by changing one easy step at a time. Follow each one of the following steps for three weeks before you go to the next one and it can become a good habit for you for the rest of your life.

Step 1—Start drinking 10 large glasses of pure water a day: two upon rising in the morning, two about an hour after breakfast, two an hour after lunch, two in two hours after lunch and two an hour before supper. Dr. F. Batmanghelidj, of Princeton, N.J., has proven that such a regime can eliminate ulcers in three weeks, lower serum cholesterol levels, relieve constipation and chronic fatigue, and help relieve arthritis. He says any kind of water will do the trick, but the purer the water the better, and the faster results will come. The water must taste good to you. If not, switch to a different type — spring, mineral, distilled, etc.

I would drink chlorinated water only if the alternative was no water at all.

Step 2 — Look into using food supplements to build up your body. After these many years on a deficient diet, your body needs the help it can get as soon as possible. I don't push any certain kinds; there are many good ones on the market. Be careful of those high in protein and lactose or sucrose. Start consuming flax every day, either in a drink mix, bread, pancakes or in a bar form. Buy food supplements from a person or store that can help guide you on what is best for you. An article in the November 7, 1992, issue of *Lancet* J proved that taking supplements can cut the incidence of being sick by 50% in the first year.

Ground Stabilized Fortified Flax is so loaded with beneficial nutrients that most other supplements are lacking, you virtually must include it in your diet. Flax is the best way to get those nutrients most lacking in most Americans' diets — Omega-3, the lignans, soluble fiber, insoluble fiber and other unidentified nutrients. You can find Stabilized Fortified Flax at your nearby health food store or they can order it for you. If you can't buy bread with flax in it, have your local bakery contact Natural Ovens of Manitowoc, WI, and we'll help them learn how to use flax in their breads.

Step 3—Consume at least five servings of different fruits every day. Fruit contains sugar that satisfies the sweet tooth, and lots of vitamins and hundreds of beneficial compounds we know little about.

Step 4 — Consume at least five large servings of vegetables a day. Eat some raw and some cooked. Be sure to eat lots of dark green and yellow vegetables. They are your best source of beta-carotene — the best anti-oxidant and cancer fighter found so far, plus hundreds of cancer fighting compounds.

Step 5 — Increase your use of grain-based foods—breads, cereals, pasta, potatoes and beans — to 10 servings a day, if you can. You can't get fat from whole grains, because you'll feel full before you eat too much. The body has a difficult time converting complex carbohydrates into fat, so go ahead and fill up on complex carbohydrates.

Step 6 — Cut back on protein foods. High-protein diets deplete the body of calcium. You really only need 50 grams of protein a day- the equivalent of three ounces of meat, poultry or fish. Use meat as a flavoring, not as the center of the plate. You'll be glad you did. Use the recipes in the appendix.

Step 7 — Cut back on fats. First, eliminate hydrogenated fats, such as shortening and margarine. Remember that a recent article in a British Medical Journal, Lancet, showed that 2 1/2 pats of margarine could double your chance of having a heart attack. Therefore, don't eat any food that contains any "partially hydrogenated vegetable oils." Extra virgin olive oil is best, because it has proven its safety in the last 2000 years, so cut down on polyunsaturated oils like corn, safflower and sunflower. There's a definite connection between consuming high levels of polyunsaturated fat and the increased rate of death from cancer in the U.S. As Americans have been switching from animal fats to polyunsaturated fats, the cancer death rate has been going up as fast as the heart death rate has been going down.

Unless you're vegetarian, don't eliminate meats entirely, because they add a lot of flavor to foods like soups, pasta and stir-fried dishes. Keeping three ounces per day of meat in your diet usually won't hurt your health and will keep your meals more interesting.

When you need a fat in your cooking, I recommend olive or canola oil. No health risks are connected with these two oils, even at substantial levels in the diet. Remember, they do contain three times as many calories per gram as complex carbohydrates, so they can increase your weight.

Test out the recipes that appeal to you from the appendix of this book. Try them all. Use them regularly. In a few weeks, you'll feel better than you felt in years. With that reward, you're likely to stick with healthful eating.

Step 8 — Cut down or eliminate artificial stimulants in your life, such as caffeine, nicotine and other wet or dry drugs, and violent movies. By doing the first seven steps, you'll probably feel so good that you'll be cutting down on artificial stimulants anyway. You lose self-respect when you know you have to rely on a white stick, brown liquid, white powder or gory scenes to feel excited.

Step 9 — Exercise. Exercise can take many forms, but be sure you get a good sweat-up three times a week. Walking, swimming, running, etc., are good. For us, we find Fitness Master cross-country ski machines are best because they are fun to do with Glen Miller Big Band Music playing in the background. The machines exercise the upper body as well as the leg muscles. Whatever you do, enjoy it and do it regularly.

Step 10 — Make peace with your Creator. Life will be more satisfying and more complete if you help others rather than just living for yourself.

## 8. BEATING THE FOOD GIANTS

To me, beating the Food Giants consists of having strong public support for your products and the support of the scientific community, including university researchers as well as the FDA people.

By 1993, my little bakery that started in 1976 with 10 people and serving about 12 stores had grown into a Midwestern success story. We had won four Entrepreneur-of-the-year awards from various organizations. We had been written up in all the major newspapers in the country at one time or another. My wife and I had done dozens of TV talk shows and hundreds of radio talk shows. Natural Ovens had grown to serving more than 1,000 large supermarkets in Northern Illinois, Southern Minnesota and nearly all of Wisconsin. Natural Ovens sales totalled \$8 million in 1992. We were receiving on the average of one offer per week to sell out. To one and all, we said our company was not for sale to anyone at any price at any time.

The high point of my life came on April 1, 1993, when I attended the Annual Convention of Experimental Biologists with 7,000 other scientists. Nine papers were presented on flax seed — the little seed that I had rescued from oblivion in 1986 was now on the front burner at many research institutions, including the FDA. Each research group had good things to say about flax seed. The FDA also presented four favorable reports on the results of their two-year investigation of flax seed.

Drs. Babu and Jenkins from the FDA found that levels of 1.25 and 2.5% flax in the diet stimulated the immune system and that higher levels would reduce mitogenic activity in cases where the immune system was over activated, such as people with food allergies.

Drs. Kaup, Hight and Rader found that flax increased Vitamin D levels and decreased urinary losses of calcium, magnesium and phosphates. In other words, flax increased the retention of calcium, magnesium and phosphate.

Drs. Jenkins, Mitchell, Grundel and Blakely found that ground flax seed did not have any negative effects on any of the major enzyme systems, such as liver and Intestinal microsomal cytochrome P-450, aniline hydroxylase, benzphetamine demethylase, or glutathione-S transferase. They did not find that flax seed lowered blood Vitamin E levels, as fish oils do.

Drs. Obermeyer, Warner, Casey and Musser found that flax is very high in lignans and that lignans have anti-tumor activities and may be linked to a low incidence of breast and colon cancer. They also discovered that flax contains an anti-oxidant that is as good or better than BHA and is found at a very high level of 800 ppm.

Other researchers at the conference found other good results with flax seed. Drs. Thompson, Orcheson, Rickard, Seidl, Cheung, Luvengi and Fong found that 10% level of flax seed in the diet of rats could mimic the results of Tamoxifen, the leading mammary cancer drug. They found the side effects of flax were much less than the side effects of Tamoxifen.

Drs. Watkins, Tomeo, Struck and Bierenbaum from the Kenneth Jordan Heart Research Group compared bread containing 30% flax seed to whole-wheat bread. They found that flax-seed bread was much superior to whole-wheat bread in lowering total cholesterol, LDL and lipid oxidation products. The flax seed also raised HDL and Vitamin C levels in the blood.

Drs. Bohannon, McFarland, Crews, Ferrin and Patzlaff from South Dakota State University found that adding 8% flax seed to the diet could help correct the diabetic conditions caused by a high-fat diet. They found that the moderately high level of flax was better than the same level of oat bran in lowering triglycerides, total cholesterol and LDL, and had favorable effects on insulin activity.

Drs. Haggerty, Harris, Greaves, Wilson and Alexander from the Midwest Research Institute found that the lignans in flax were very stable and could be stored for long periods of time.

What more could any food researcher want than being validated by so many members of the research community? This validation represents a victory for all the people who have supported my ideas by buying Natural Ovens products for the past 17 years. The customers and the company are beating the Food Giants by discrediting the Food Giants' policy that the more people eat, the better off they are. By our success, we are showing the Food Giants that the American public is a lot smarter than they think we are.

My next step in beating the Food Giants is to start a special outreach program of teaching other people how to bake breads like Natural Ovens. I am really disappointed that even though I am financially successful, not a single food company has tried to copy me. I have given away our recipes in past books I have written, I have called and written them, to no avail. And I have taken much shelf space in the grocery stores from them, but they won't respond. Perhaps if I can help regular people start hundreds of bakeries like Natural Ovens all over the U.S., they will listen. If they won't respond, I hope you will join us in teaching the food industry the lesson that they must make food good for people's health or be sunk by the clamor of intelligent people buying healthful products.

Recipe's

Paglio El Fienio Turkey Spaghetti Sauce Black Bean and Bacon Soup Ground Turkey Meatloaf  
Pork Roast in Mushroom Gravy Marmitako (Tuna and Potato Casserole) Vegetable Lasagna  
Spinach Quiche Great Steamed Veggies Oriental Stir-fry  
Sandwiches and Fillings  
Sweet Potato Vegetable Medley  
Nut Loaf  
Scrumptious Pancakes and Waffles

Here are some recipe's used by our company's chef, Kevin Reilly. These were developed to please "All American" type Natural Ovens employee. We serve our employees a free lunch everyday to keep them healthy, happy, and very productive. The lunch also helps them slim down and work smarter too. We're sure some of these recipe's will please you too. The recipe's are packed with great taste, yet they're low in fat. We're sure you'll love them!

Paglio El Fienio or Pigs In The Straw  
(Ham In Fettuccine With Pesto)

The playfulness of the name(s) of this dish gives you an inkling of the pure joy in the taste combinations. The secret to this dish is a heavily smoked ham. Purchase the smallest smoked ham you can with the bone and rind (the outside of the ham that is dark and dry) intact. Trim the rind, bone, and fat out of the ham and set aside for the stock. Dice 1 pound of the trimmed ham into 1/2 inch size pieces for the dish and set aside. Store the remainder of the ham for another dish, another day. You could use ham bouillon cubes or ham base instead of making your own stock, but the flavor will suffer, and you'll miss out on part of the fun.

1 ham bone, rind trimmings and trimmed fat  
1 pound ham, diced 1/2 inch pieces  
3 tablespoons minced garlic  
1/2 cup fresh chopped basil (dried if not available)  
1 cup fresh chopped parsley  
1/2 cup extra virgin olive oil, or canola oil

1 & 1/2 pounds dry fettuccine noodles

To make ham stock: Place ham bone, rind trimmings and fat into a pot large enough for ham bone to "lay down" in, and with sides high enough that "boil over" does not occur. Add the 4 cups water and place on high heat and bring to boil. Reduce to medium high heat and cook on controlled boil uncovered for one hour. If water boils off to a point where scorching is imminent, then add enough water to cover stock items. At the end of the hour, remove from heat and allow to cool until safe to handle. Remove ham bone from pot with tongs and discard. Using a securely fitting colander and container to catch stock in, carefully strain stock from trimmings. Discard trimmings. Skim fat off of ham stock and discard fat. (I find that if stock is in a container that is taller than it is wide, and by using a soup ladle and gently pushing it down into the stock and letting the fat pour into ladle, I can remove all appreciable fat.)

To make pesto sauce: In a food processor or good quality blender, add ham stock, garlic, basil, and parsley. Begin blending, and with motor running, add oil by drizzling in feed opening. Blend until ingredients are consistent throughout mixture. Do not over mix. Add the mixture to a pot (you'll use the one you made your stock in if you want to wash one less dish) with the diced ham, and heat on very low flame until warm.

To make fettuccine: In a large stock pot add 1 & 1/2 gallons water and bring to full boil on high heat. Once water is boiling, add fettuccine noodles slowly stirring as you add. If the water stops boiling, cover until boil returns. Stir often while cooking to avoid pasta from sticking together. Start checking for doneness, al dente, after 5 minutes. Should be done after 6 to 8 minutes of cooking. Drain into a large colander. Transfer to a large serving dish, (or back into the pot you cooked it in if you want one less dish to wash) and add pesto sauce and toss until all noodles are coated and ham is mixed throughout. Serve while still hot. Yields 25 cups. Serves 8, 3 cup portions. Serve as main course with a hot vegetable, bread, and a fresh garden salad.

### Turkey Spaghetti Sauce

This is a basic recipe that can be varied in innumerable ways. You can use different vegetables that are in season or on hand, or to suit your own tastes. Even though the meat is a small part of the dish, if the vegetables are chopped in small pieces, between a quarter and a half inch in size, the sauce is perceived as a meat sauce by your family or guests. This sauce has a thick body and works well on medium and larger sized spaghetti and pastas.

1 pound ground turkey  
3 tablespoons chopped fresh basil (dried if not available)  
2           tablespoons minced garlic  
2—15 ounce cans tomato sauce  
1—15 ounce can diced tomatoes in juice  
6 tablespoons "pure" olive oil or canola oil  
1 cup chopped yellow onion  
1 cup chopped green peppers  
1 cup chopped fresh mushrooms  
1 cup chopped celery with greens  
1 cup chopped broccoli  
1/2 cup chopped fresh parsley (dried if not available)  
salt and pepper to taste

The technique I use involves a non-stick frying pan or wok, and a medium size pot with a good fitting lid. Preheat the frying pan, medium high heat, and add one tablespoon of oil to season the

pan. Add the ground turkey and start to brown, stirring and breaking the turkey up into as small pieces as possible. Add the basil and garlic about halfway through browning. You do not want to over cook the basil and garlic, so remove the pan from the heat as soon as all pink is gone from the turkey.

Carefully drain fat from the pan if any is present. Add the tomato sauce, diced tomatoes in juice, and browned turkey to the pot and begin simmering on low heat, covered. Return frying pan to medium high heat and add three tablespoons oil. Add onions and green peppers to pan, stirring often, and heat till onions start becoming translucent. Remove pan, add onions and peppers to sauce, stir, cover. Return frying pan to heat, add 2 tablespoons oil, add mushrooms, celery and broccoli. Cook till lightly sauteed. Add parsley, heat briefly, stir. Add contents of frying pan to sauce pot, stir, cover and simmer sauce for 10 minutes. Carefully taste and determine whether any pepper or salt is needed, (the flavor of the garlic, basil and onions are often the only seasoning needed) and add only small amounts at a time. Serve immediately for best taste, texture, and nutrition. Yields 12 & 1/2 cups sauce. Serves 8, 1 & 1/2 cup portions. Serve over spaghetti, pasta, rice, or bread. Freezes well.

### Black Bean and Bacon Soup

This is a thick and hearty "stick to your ribs" soup. Black beans or turtle beans are a small kidney shaped bean with a creamy interior used extensively in Latin American and Caribbean cooking. They have a wonderful flavor and texture that compliments many dishes. You do have to think at least one day in advance to properly prepare beans from the dry form. Canned beans can be wonderful, and I keep several varieties on the shelf, so I can whip up a meal of beans, rice, and salsa for a complete meal on a moments notice, but canned beans are still much like canned vegetables, they put things in you don't want, cook out things you do I want, and don't do justice to the original in taste, texture, or flavor.

2 cups dried black turtle beans (1 & 1/2 lbs.)

2 tablespoons canola oil

1 cup chopped onion

1 cup chopped celery (include tops)

1 tablespoon chopped garlic 1 tablespoon ground cumin 3/4 of a pound bacon (the smokier the better)

salt and pepper to taste

To soak dry beans: Spread beans out on a flat surface like a cookie sheet and pick out any stems, pebbles, shrivelled, discolored or foreign beans and discard. Put sorted beans in a colander and rinse them under cold running water. Put beans into a container and cover with plenty of water. The beans will expand and soak up water, so have enough so they don't drink it all up. Let beans soak for at least 8 hours, preferably overnight. When ready to cook beans discard soaking water and gently rinse beans off in colander under running water. The soaking water is full of the indigestible sugars that give beans their musical reputation. By discarding this water and rinsing the beans off at this point you will be reducing the beans potential for embarrassment considerably. Let the beans drain off in the colander while putting together the other soup ingredients.

To cook bean soup: Heat a large heavy pot on medium high heat, add the canola oil. Saute onions, celery, and garlic in pot. Add cumin and stir. Add 3 quarts of hot water and the black beans. Bring to a boil, stir, reduce heat and simmer on low heat, covered, for 2 hours, checking occasionally to stir and see that the beans are not sticking or burning to pot. In a frying pan, brown off the bacon, pat off bacon with paper towel. Dice into 1/4 inch size pieces and add to soup after beans have cooked 2 hours. (The reason you don't want to add the bacon before this is that the salt in the bacon slows

down the cooking of the beans and can make their shells hard and tough.)

Simmer another half hour to hour. Check soup for taste and richness of broth. You want to stop simmering after the beans have cooked through and are soft and creamy, but before all of the beans have disintegrated. Salt and pepper to taste after done simmering. Serve while still hot. Yields 21 & 1/2 cups. Serves 8, 2 & 2/3 cup portions. Serve in bowls with bread and a piece of fruit for a nice lunch, or serve in cups for an early course for dinner. This soup is wonderful with a few dashes of cayenne red pepper "hot sauce." I don't add it to the recipe because some people just can't handle the heat, but I make sure there's plenty on the table for those of us who like food to bite back once in awhile.

### Ground Turkey Meatloaf

This is one of those amazing dishes where people don't realize how little meat and fat they are actually consuming. Using this recipe a person would have to eat a 12 ounce serving to get two ounces of turkey and one third of an egg. Most people are very satisfied with a six or eight ounce serving of this dish.

1 pound thawed ground turkey  
10 slices Natural Ovens Light Wheat Bread  
1 cup chopped onion  
1 cup finely diced broccoli stalks (trim ends and peel)  
1 cup chopped or diced tomatoes  
1 cup finely chopped Dutch mushrooms  
1 cup tomato sauce  
1/4 cup finely chopped celery (tops included)  
1 red bell pepper, seeded, cored, and finely chopped  
3 eggs well beaten  
2 tablespoons minced garlic  
2 tablespoons canola oil  
1 teaspoon cumin  
1 teaspoon salt  
1/2 teaspoon dried oregano  
1/4 teaspoon cayenne pepper sauce  
cup tomato juice  
tablespoons dried parsley  
1/2 cup barbeque sauce

Preheat oven to 350°. Take all ingredients except canola oil, tomato juice, and parsley, and mix thoroughly in a large container. Mix until all ingredients are evenly distributed and bread cubes are broken up into the mixture. Take the pan you are going to bake the meatloaf in, and oil the bottom and sides with the canola oil. A bread pan or small cake pan will work, something that will hold your 6 pound meatloaf and the fat that will come out of it. Form the meatloaf into the pan and smooth it out with a spatula "doming" it in the middle to give it a "loaf" like shape. Pour the one cup of the tomato juice over the loaf and place in the oven and cook for 30 minutes. At 30 minutes, remove the pan and pour off the fat if excessive. Pour on barbeque sauce, this time garnishing the top with the parsley. Return to the oven and cook for an additional 15 to 20 minutes. Pour off the fat again if excessive, and let stand 10 minutes covered before slicing and serving. Yields one 6 pound meatloaf. Serves 8, 12 ounce slices. Serve with steamed vegetables, whole grain bread, and a salad for complete dinner. Leftovers are great for sandwiches.

### Pork Roast in Mushroom Gravy

Mushrooms are a wonderful way to stretch meat. They can be added to many dishes as a meat substitute or stretcher. Their rich flavor, texture and even the "gravy" they release all add up to qualities that fool even a die hard carnivore into thinking they've consumed much more protein and fat than they actually have. This recipe can be varied for chicken, by using a whole chicken, boning it and using the bones for the stock.

1 & 1/4 pound pork roast with bone in 5 tablespoons canola oil  
1 tablespoons minced garlic  
1/4 teaspoon black pepper  
4 cups water  
1/2 cup stock items (celery tops, broccoli stems etc.)  
1/4 medium or small onion  
1 bay leaf  
1 & 1/2 pounds sliced mushrooms  
1/2 cup diced onions  
3 tablespoons cornstarch  
1/16 teaspoon salt  
1/16 teaspoon ground sage

Preheat the oven to 375°. Bone and trim the fat off the roast, saving for stock. Into an oiled pan, place the boned and trimmed pork. Rub the top of the meat with the 2 tablespoons of canola oil. Then rub the garlic into the meat and sprinkle the black pepper on top. Put the meat in the oven and cook for 30 to 40 minutes. Take the bone and trimmings and brown on the stove on medium high heat in a medium size pot until bone and trimmings are nicely browned. Add 4 cups of water and any "stock" items you want, such as celery tops, broccoli stems 1/4 onion and a bay leaf. Bring to a boil, then simmer for 1 hour. When roast is done, remove from pan and set on wire rack to cool. Any drippings in the pan should be added to the stock pot. When the roast is cool enough to handle, cut and slice the roast thinly into 2 X 3 inch pieces. What you are accomplishing by this, is increasing the surface area and giving the appearance and sensation of more meat to your family or guests. When the stock has finished cooking, strain the stock into another container. Discard the bone, trimmings and stock vegetables. Remove the fat from the stock by slowly pushing a ladle into the liquid and letting the fat on the top flow into the ladle. Put the empty stock pot back on stove and heat 3 tablespoons of canola oil in it on medium high heat. Add the mushrooms and saute briefly. Add the sliced pork roast to the mushrooms and stir. Add the defatted and strained stock liquid back to the pot and bring to a simmer. Add the salt and sage to the stock pot. In a small cup or container add the 3 tablespoons cornstarch to 6 tablespoons cold water and mix so there are no lumps or dry cornstarch. (Add more water if needed.) Add to the stock pot and stir it evenly into the liquid. Simmer until liquid and corn-starch react and thickening of the gravy occurs. Yields 14 cups. Serves 8, 1 & 3/4 cup servings. Serve warm over brown rice, whole wheat bread cubes, or egg noodles.

Marmitako (Tuna and Potato Casserole)

This is a Basque (Spain) recipe that has a wonderful combination of flavors and seasonings that we don't often think of as accompaniments to tuna. With the addition of more liquid, (1 & 1/2 cups white wine and 1 cup water or fish stock) this recipe can become a delicious stew. Any leftovers can be given this treatment, and served over a big slice of hearty bread just like the Basque fishermen do, it is a wonderful next day lunch.

4—6 ounce cans chunk light tuna, drained & rinsed  
6 tablespoons canola oil or pure olive oil  
cup chopped yellow onion, 1/2 inch or less

2 tablespoons chopped garlic  
3 bell peppers chopped, 1 each, red, green, & yellow  
2—16 ounce cans tomato fillets, drained, save liquid  
2 teaspoons paprika  
1/2 teaspoon salt  
1 teaspoon black pepper  
1 small chili pepper, cleaned of seeds & diced finely  
4 pounds medium red potatoes (approx. 12) washed and diced

In a heavy pot, heat the oil on medium high heat and saute the onions, garlic, and bell peppers. When the onions start becoming translucent, add the tomato fillets, paprika, salt, pepper, and the chili. Stir all the ingredients together until well mixed, avoiding scorching. Add the potatoes and continue stirring for 3 to 5 more minutes. Add the liquid from the tomato fillets and 1 cup water. Cover the pot and continue cooking for 15 to 25 minutes. Start checking after 15 minutes for softness (doneness) of potatoes and also to stir and avoid scorching. When potatoes are done, reduce heat to a low flame and stir in tuna and heat only enough to heat tuna through. Remove from flame, cover and allow 10 minutes to set up before serving. Yields 18 & 1/2 cups. Serves 8, 2 & 1/3 cup portions. Serve with dark bread, salad and hot vegetable.

### Vegetable Lasagna

This lasagna not only doesn't have any meat, it doesn't have any dairy products either. This dish is a little work, something you might want to do for a special event, but the results are worth it! The secret to this dish is the use of extra soft tofu mixed with basil and garlic to replace the cheese in traditional lasagna. This may make a lasagna purist roll over in the grave, but they probably wouldn't have been in the grave so quick if they had tried this trick. Besides it's delicious. A lot of people get turned off from tofu because the only kind they've tried is extra firm and the texture is too springy for them. If you'll try this recipe you'll see that the taste possibilities for using extra soft tofu mixed with spices are only limited by your own imagination.

1 & 1/2 cups chopped broccoli  
1 & 1/2 cups chopped cauliflower  
1 & 1/2 cups chopped zucchini  
1 & 1/2 cups chopped mushrooms  
1 & 1/2 cups finely chopped onions  
1/2 cup chopped red & green bell peppers  
1/2 cup chopped parsley  
3 tablespoons chopped garlic  
4 tablespoons olive oil or canola oil  
5 tablespoons dried basil  
30 ounces tomato sauce  
20 ounces extra soft tofu, rinsed and drained  
10 ounces dried lasagna noodles

Bring 4 quarts of water to a boil in a large pot. Add lasagna, stir, bring back to boil and cook until just tender. Drain, rinse under cold water and leave in cold water until shortly before ready to assemble lasagna. Preheat oven to 350°. Heat 2 tablespoons oil in large skillet on high heat on stove and add onions, broccoli, and cauliflower. Stir and heat until onions begin to turn translucent. Dump contents of pan into large bowl and return pan to heat and repeat for bell peppers, mushrooms, and zucchini. In a separate bowl, mix the drained tofu, garlic, and basil thoroughly with a whip and set aside. In the bottom of a 13 X 9 baking dish spread a small amount of tomato sauce. Drain noodles and lay out a single layer of lasagna noodles. Gently with a spatula smear a coating of the tofu paste

(about 1/3 of the bowl) on top of noodles. Add all the tomato sauce except 1/2 cup to the large bowl of cooked vegetables and stir. Ladle out about 1/2 of the mix gently onto the tofu covered noodles. Repeat with a layer of noodles, paste, vegetables, noodles, paste, the reserved tomato sauce and sprinkle the top with the parsley. Cover with foil and cook 30 minutes. Take the foil off and cook for another 15 minutes uncovered. Remove from oven and allow 15 to 20 minutes to set up before attempting to cut or serve. Yields a 22 cup pan of lasagna. Serves 8, 2 & 3/4 cup portions. Serve with a fresh garden salad and bread split, brushed with olive oil and garlic, wrapped in tin foil and put in the oven with lasagna for last 20 minutes of cooking for a wonderful non-buttered garlic bread.

### Spinach Quiche

This is a crustless quiche that is snap to prepare. You can substitute other vegetables for the spinach, or add a little ham or bacon to vary the recipe.

3 pounds frozen spinach, thawed  
1—16 ounce can tomato fillets drained  
1 cup diced onions  
6 medium to large eggs  
6 slices whole wheat bread, 1/2 inch cubes  
4 tablespoons canola oil  
1/4 teaspoon thyme  
1/2 teaspoon salt  
1/2 teaspoon paprika

Preheat oven to 350 °. Place the spinach in a colander and shake off the excess moisture. Put the spinach in a saucepan and heat briefly on low heat for 3 to 4 minutes just to wilt it slightly and warm it through. Put it back in the colander and squeeze and shake off any additional water. Chop coarsely and set aside. Heat 2 tablespoons oil on medium high heat in a saucepan and saute the onions and thyme until the onions are translucent, set aside. In a large bowl whisk eggs, paprika, salt and 1/3 cup water. Stir in spinach, tomato fillets, and onions. Use the remaining 2 tablespoons canola oil to oil a 13 X 9 inch baking dish. Spread bread cubes evenly throughout the bottom of dish. Pour the spinach egg mixture over the bread cubes using a spatula if necessary to make it even. Bake until set in middle and turning golden, about 25 minutes. Let set 10 minutes before cutting or serving. Yields a 20 cup pan of quiche. Serves 8, 2 & 1/2 cup portions. Serve for a special brunch or luncheon with pan fried potatoes (non-stick pan, small amount of canola or olive oil, and fresh black pepper) and a fresh fruit salad of what is in season.

### Great Steamed Veggies

8 Slices Sunny Millet Bread  
1 medium onion, chopped  
2 stalks celery, chopped  
1 or 2 carrots, chopped  
1 cup summer squash & zucchini  
1 cup tofu, cubed  
1 cup mushrooms, cut  
1 handful bean sprouts  
1 cup broccoli, cut  
2 T. tamari sauce

Saute the onion, celery and carrots in a wok or large pan. Add all remaining vegetables except

broccoli and sprouts. Cover wok or pan and steam vegetables for about 10 minutes. Stir occasionally. Add broccoli and sprouts and cook for 3 or 4 minutes. All the vegetables should remain crisp. Serve over natural Ovens Sunny Millet bread. Serves 4.

### Oriental Stir-fry

1 T. canola oil  
1 stalk bok choy, chopped  
1 lb. fresh bean sprouts  
1/2 lb. fresh pea pods  
1 can water chestnuts  
salt and pepper  
1 cup shrimp, cooked  
Optional: mushrooms, bamboo shoots, and celery.

Heat oil in large kettle or wok. Add bok choy and stir for a minute or two. Add remaining ingredients. Stir constantly over high heat until mixture is piping hot and vegetables are crisply tender. Serve immediately over rice or Chinese noodles. Garnish with slivered almonds, Serves 4.

### Sandwiches and Fillings

Date Filling: Grind 1 cup dates and 41 tablespoons nuts using fine knife or food chopper. Add enough orange juice to make the mixture of spreading consistency. A little lemon juice added will take away the too-sweet taste.

Almond butter and vegetables: Combine grated or ground raw carrots, celery or onions with nut butter. Season to taste.

Tuna: Remove excess oil from tuna fish. Or better, buy tuna packed in water and drain. Flake fish and mix with 1/4 cup each of chopped celery and nuts, and moisten with lemon salad dressing.

Raw Vegetables: Grind 1 /4 cup raisins and 1/2 cup each shredded cabbage, carrots and apples. Add 1 tablespoon lemon juice and season to taste. Moisten with desired dressing.

Vegetables: Thin slices of Bermuda onion, tomato and avocado with sprouts and/or leaf lettuce. Spread thinly on the toast — coleslaw dressing and mild to medium salsa. Serve with a pickle and low salt chips. Great for a quick lunch or supper.

Chicken: To 1 cup chopped chicken, add desired amount of celery, cucumber, olives and radishes chopped fine. Season to taste and moisten with mayonnaise.

### Sweet Potato Vegetable Medley

4 sweet potatoes  
1 cup chicken broth  
2 cups fresh green beans  
1 small onion, chopped  
1 cup mushrooms, sliced  
1 cup water chestnuts pepper to taste

Steam potatoes 35-45 minutes or until just barely tender. Drain, cool, peel and slice. Place 1/2 cup of broth in a large skillet; add beans and onions. Cover and steam about 8 minutes or until beans are

tender. Add remaining broth. Fold in mushrooms, sweet potatoes and chestnuts. Heat over medium heat until vegetables are hot. Season with pepper.

### Nut Loaf

1/2 cup Brazil nuts  
1 cup almonds  
1 cup sunflower seeds  
1/4 cup flax seed, ground  
2 small onions, diced  
1/2 cup fresh parsley  
1/2 t. sage  
1/2 t. thyme  
1/2 t. salt  
1/2 t. sweet basil  
1/2 cup almonds, ground  
2 cups water  
2 T arrowroot powder  
2T. oil  
1/2 t. salt

Grind all nuts in blender. Mix flax seed with water until it reaches the consistency of an egg. Combine onions, parsley, sage; thyme, salt and basil. Place mixture in a well oiled loaf pan. Bake at 350° F for 25 minutes. Serve hot. Mix last 5 ingredients and stir over medium heat until thick. Pour over cooked loaf.

### Scrumptious Pancakes and Waffles

1 cup Barbara Stitt's Pancake & Waffle mix  
1 cup water  
1 egg (optional)

Waffles: Combine above ingredients until smooth. Allow to sit 5 minutes or so. Spray the hot waffle iron with PAM or olive mist. Spoon batter into the waffle iron and bake until steaming stops. Remove carefully.

Pancakes: Oil a hot griddle with a spray of PAM or a few drops of olive oil. When water dances on the surface, spoon batter onto hot griddle. Cook pancakes until edges are dry. Turn and cook until golden brown.

Serve both with real maple syrup, sliced bananas, strawberries, blueberries or peaches.

Makes 4 Belgian waffles or 8 dollar pancakes.

### APPENDIX 1

#### WHY ALL BAKERS SHOULD MAKE BREAD LIKE NATURAL OVENS

Food, Teens & Behavior

Why George Should Eat Broccoli

Why Calories Don't Count!

#### WHY ALL BAKERS SHOULD MAKE BREAD LIKE NATURAL OVENS

We at Natural Ovens pride ourselves on the fact that we make the worlds best bread — best tasting, best for your body, best for our country's health and best for our environment. All bakers should follow our example. We have a program to help them learn how.

Natural Ovens breads are scientifically twenty years ahead of the competition. The breads are nutritionally balanced to provide all of the essential minerals and the B vitamins. The breads contain vitamins and minerals that no other breads do and that even your multi vitamin pill may not contain — such as chromium, selenium, folic acid, magnesium, zinc, etc. We put all these essential nutrients into our breads because we are afraid that otherwise you, the consumer, may not get adequate levels of the important nutrients that could help improve your health.

Most of Natural Ovens' breads also contain flax, which contains high levels of Omega 3. Flax has been shown by the FDA and many other research organizations to help lower cholesterol, prevent growth of tumors, stimulate the immune system, make brain and reproductive cells that work better and makes more flexible cell membranes, which means fewer wrinkles.

Most of Natural Ovens' breads also contain as much calcium and magnesium as a serving of dairy products. Also, a serving contains as much iron, zinc, folic acid, and B-12 as a serving of meat, so that vegetarians can safely live on our breads.

For our country to survive into the twenty-first century, all America must get much healthier. The cost of sickness care is on the verge of bankrupting our country. In 1993, the average cost of medical care in the U.S. for every man, woman, and child is nearly \$4,000 per year. To reduce sickness care costs our government is recommending all people consume 6 to 11 servings of whole grain breads, pasta, and cereal daily. Our breads can wholesomely fulfill that government recommendation.

Natural Ovens bread is inexpensive. Here's why! If you eat six slices a day, the minimum government recommendation, it will cost you only \$200 per year, yet it will provide you with over 60% of the RDA for protein, fiber and all vitamins and minerals, except vitamins A and C. You can easily get adequate vitamins A & C from 5 serving a day fresh fruit and vegetables, another government recommendation.

Natural Ovens breads are also good for the environment. Our label becomes an interesting and useful newsletter to educate yourself and others about how to eat so that you feel good. Our outer bag can be easily reused around the home, and the inner wrap weighs less than 1/2 ounce and takes up little space in the trash. By using Natural Ovens breads, you will also be purchasing fewer processed and boxed goods, which are nutritionally and environmentally very undesirable.

We have a special out-reach program to teach bakers how to make Natural Ovens bread. We charge only for the time and materials used to teach them. We want all people everywhere to be able to buy breads like ours. If you or your baker would like to try them, you can have them delivered to your door by calling 1-800-772-0730.

Food, Teens & Behavior

Can the things kids eat really affect how they behave? The evidence says YES. Now, Barbara Reed Stitt, former probation officer and nationally recognized educator in the field of diet and behavior, shows how the typical teenage junk food diet can lead to learning disabilities, delinquency, and even criminal behavior.

A decade of distinguished research work in the criminal justice system has convinced her that the quality of brain nutrition has a profound impact on the functioning of the mind. She has developed THE MOST EFFECTIVE PROGRAM IN THE NATION TO KEEP PEOPLE FROM GETTING INTO TROUBLE.

In FOOD, TEENS & BEHAVIOR, Barbara examines the biochemical roots of delinquency and crime in easy-to-understand language. She also explains fully how to provide adolescents with the best possible brain nutrition — and how to keep them from becoming part of the millions of teenagers arrested in this country every year.

FOOD, TEENS & BEHAVIOR is a book for the parents of teens in trouble—and for those who want to help their children avoid trouble. It is also a valuable guide for anyone who works with young people, such as psychologists, probation officers and guidance counselors

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Why George Should Eat Broccoli

Because cancer is expected to be the leading cause of death by the year 2000, the time to act is now.

WHY GEORGE SHOULD EAT BROCCOLI explains how the best anti-cancer diet is also the diet for feeling your very best.

Somehow through the years we have failed to recognize the vital need for basic foods such as fruits, vegetables and whole grains. For some people maybe the importance of these foods has been forgotten with the onset of the Age of Convenience.

However "convenient" these "foods" may seem, there are none more convenient and simple than the foods provided by Mother Nature. WHY GEORGE SHOULD EAT BROCCOLI brings us back to the vital importance of eating these foods that have been with us virtually since the beginning of time.

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Why Calories Don't Count!

Think you know everything about dieting? Forget It! Did you know...

\* That going on a low-calorie diet can make you GAIN weight?

That a low-calorie diet can make you sick, Irritable, and even cause emotional Illness?

That you could eat much more than you're eating right now and still be slimmer?

Biochemist Paul Stitt, author of the popular book, FIGHTING THE FOOD GIANTS, now reveals the myths behind modern diets in WHY CALORIES DON'T COUNT!

WHY CALORIES DON'T COUNT shows why the traditional low-calorie or low-carbohydrate diet won't work for you! But that's not all... Paul Stitt also teaches you how to satisfy the body's hunger with a minimum of calories, and tells you more about a neglected nutrient which can let you eat MORE and lose weight.

So if you're tired of the old dieting routine, if you want to slim down and stay slim and never be hungry again, don't "weight" another minute! Read WHY CALORIES DON'T COUNT!

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#### ABOUT THE AUTHOR

Paul A. Stitt was born on a farm near Verona, Illinois, Oct. 10, 1940, and has devoted his entire life to human nutrition. From gathering eggs and feeding pigs as a boy, to his four years as a food scientist for Tenneco Corporation and the Quaker Oats Company, to his development of three patented protein-synthes's techniques, and finally to the establishment of his nationally recognized bakery, Natural Ovens of Manitowoc, Paul has been working to produce better foods and to inform the world about the dangers of our processed diets.

He received his undergraduate degree in chemistry at Beloit College in 1962, and his Master of Science Degree in biochemistry from the University of Wisconsin at Madison in 1968. From 1968 to 1970 he worked in protein research for Tenneco. Paul then did exploratory research for Quaker until he was fired for insubordination in 1972. As a food scientist he learned that the American food industry was out to deceive the public. It was his constant insistence that the Food Giants produce nutritious, non-addictive foods that irritated his employer and led to his eventual termination.

Paul spent the following three and a half years in independent research, and in 1976 founded Natural Ovens of Manitowoc Bakery to prove that commercial production of nutritious foods is feasible. Today Natural Ovens is one of the nation's largest and fastest growing distributors of whole-grain breads and natural foods.

Paul is also director of the World Nutritional Resource Center and is an outstanding member of the Natural Foods Association. He has appeared on radio and television shows across America.

#### Beating The Food Giants

According to the Wall Street Journal (April 21, 1993), the president of Coca-Cola makes \$4,051,000 a year and the president of Pepsi-Cola makes \$11,136,000 by making a fool of you. Topping that, the president of Nabisco makes \$3,061,000 for making products like Oreo cookies that you can't stop eating and Ritz Crackers (more fat per ounce than pork chops). The man who gets the best grade of all in fooling people is the president of Budweiser. He makes over \$16,000,000 for making products that relieve your inhibitions, then makes you fall asleep even

while driving a car at high speeds. Do you really want to keep these men living in the style in which they are accustomed? If not, read this book.