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Health & Healing Wisdom



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ALGAE:

*Ancient Food Source To A Modern
Nutritional-Energy Bargain (Part I)*

Algae Purifies City Water System (Part II)

Blue-Green Algae: A Manna For The Millions (Part III)

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FRESH-WATER ALGAE, "The Energy and Health Givers," have been eaten by man for centuries.¹ Recently, they have been reported by many scientists and anthropologists as the most likely group of high protein-containing organisms to provide modern man with sufficient amounts of nutriment for future survival.² These writers, however, have not themselves been consumers of algae (pronounced algee); thus, an entirely accurate account of the present uses of algae has not appeared to date in the literature. The real benefits which algae can provide to modern man, when eaten on a daily basis in 1- to 3-g amounts, (3,000 mg.) have been overlooked in available literature. Yet, these highly efficient microscopic photosynthesizers can actually provide the necessary life force modern man needs to maintain a sustained "sense of well being" and health energy."

Many people consuming freeze-dried micro-algae report dramatic increases in body energy levels. Although individuals differ, a 74-year-old woman from Waterloo, Iowa, describes her reaction to algae:

"I simply can't describe in adequate terms the effect algae has had on me. My metabolism is up tremendously, giving me energy I haven't experienced for years! I can't remember when I have felt this good! My sleeping habits, which have been so restless for many years, have taken a complete turn-around, and I am sleeping deeply and soundly for the first time as far back as I can remember. Something else truly amazing is that I have lost six pounds in one week and haven't been dieting--I'm just losing liquid like crazy. The bladder operation I had 25 years ago was never entirely satisfactory in that the bladder never fully emptied. But, the algae seems to be helping the situation, and I urinate only half as much now. The algae are doing wonders for me, and I would like to be assured a continuing supply for I don't want to be without it."

And, algae are especially helpful to the vegetarian. A young man 30 years of age, who has been on a vegetarian diet for three years, describes his energy enhancement:

"For the past three years, I have been a vegetarian 'raw-fooder.' About six months ago, I decided to modify my diet to include eggs and grains, as my weight had dropped from 135 pounds to 118 pounds and I was getting weak. About two weeks after including the eggs and grains in my diet, I began eating algae. Almost immediately my strength started coming back and it continued to increase. I gained about eight pounds. Of course, the eggs and grains I was eating helped, too. About two weeks ago, I depleted my supply of algae and have noticed two changes: 1) my overall strength is reduced from what it was, and 2) my body doesn't feel as clean as when eating the algae. My body odor has returned. I am looking forward to picking up more algae and to feeling the results of eating it again."

The results obtained by this person and by other vegetarians eating algae indicate an increase in the rate and amount that plant protein are absorbed and utilized by the body when algae are eaten in conjunction with a plant protein diet.

Also, algae are being used for partially correcting or alleviating the effects of metabolic dysfunctions such as those associated with cirrhosis of the liver, thyroid gland, arthritis, arterial disorders, nervousness, heavy-metal accumulation, etc. A 30-year-old male diabetic has described a substantial reduction in the use of insulin while eating algae:

“Let me take this opportunity to thank you for the introduction to your type of algae. It has markedly reduced my requirement for both regular type and NPH type insulin by a total of 20% to date. Further, it has regulated some of my body functions that were affected by the strain of work pressures and has generally made me feel better. I hope this brief note extends to you the faith I have in your product and the hope I have that others will find out about your algae, use it, and enjoy its benefits.”

This person is continuing to reduce his insulin requirements under the care of a qualified physician (such reductions in drugs should always be done under the care of a physician.)

Algae are generally classified according to color: green, blue-green, red and brown. Regardless of color, all contain chlorophyll for photosynthesis. And, they exist in thousands of varieties. While resembling bacteria, some of which can photosynthesize, algae are by far the most efficient of all photosynthesizing organisms. Some algae grow in colonies resembling plants. Best known of these are the sea kelp, some of which can attain lengths of several hundred feet. However, forms of algae such as these differ from true plants in not having root, circulatory, and other complex transport systems. Each alga cell is self-sufficient and complete in all the life-sustaining processes.

Fresh water algae are rich in chlorophyll, proteins, carbohydrates (starch), and unsaturated glycolipids and minerals that are necessary for balanced nutrition. (See a complete analysis in a forthcoming issue). In addition, many types are rich in “Controlled Growth Factor-CGF” as described by Japanese biochemists to explain the large increase in energy when it is eaten by man in the freeze-dried form. The dynamic nutritional quality of fresh water blue-green and green algae should not be compared to sea kelp. The sea kelp which are abundantly available in stores do not contain high levels of desirable nutriment or CGF, and when taken on a continuing basis could disturb the normal sodium and chloride ion balance in the body.

The fresh water algae, which were eaten by people of the advanced Aztec Civilization and are today eaten by people living around Lake Chad in the Republic of Chad, Africa, are available in the United States at Full of Life Health Foods, Magnolia Blvd., North Hollywood, CA. It is produced and distributed by KLA Laboratories located in New Mexico. For further information on how you may enjoy the advantages of better health and energy with algae, write LKA LABS, Inc., 3460 Oak Glen Drive, Hollywood, CA 90068, or call (213) 851-3959. An introductory supply of encapsulated and/or powdered algae will be mailed to you upon request (120 capsules/250 mg each - \$15.00; or 30 g powdered alge - \$11.00).

1. W. V. Ferrar, “A Glimpse of Aztec Food Technology, *Nature* 211, 341 (1966).
2. P. T. Furst, “SPIRULINA - A Nutritious Alga, Once a Staple of Aztec Diets, Could Feed Many of the World’s Hungry People,” *Human Nature* 1, 60 (1978).

Next time:

- What else can algae do?
- A complete analysis of its contents
- More case histories of its use for human health.

ALGAE PURIFIES CITY WATER SYSTEM (Part II of a series)

Pure, pristine-like water, purified by one of nature's oldest, yet most effective biological systems, *Algae*, has begun flowing into Lumberton, a small town located high in the North Central Mountains of New Mexico. Formerly, had been without potable (drinking) water since it was founded as a lumbering and coal mining community over fifty years ago.

Now, for the first time in fifty years this community has clean water to drink.

Formerly the Lumberton water tasted like a rotten egg in a stale glass of 7-up; potatoes and beans turned black when boiled in it; as for coffee, well - it was not recognizable as coffee when made with it; one could actually ignite and burn the gasses coming from the mixture although even that doesn't improve its taste.

But all this has changed, thanks to an innovative water treatment system - the first of its kind in the world that uses green and blue-green microalgae to purify the town's water. The algae are used in place of other expensive water purifying methods such as ion exchange and reverse osmosis which have high initial and recurring costs.

A Historic Town Without Drinking Water

Lumberton originally sprang up as a main switching point for the area's lumbering activities when the Denver and Rio Grande Railroad laid narrow gauge rails there in the last century. From its beginning, Lumberton was a town without potable water. The railroad hauled a tank car of water to Lumberton once a week for the town's water supply. But in 1949, the railroad began pulling up its rails, moving to the west from Durango, Colorado, and by 1960, all rail links disappeared from Lumberton. With that link went the last tank car of fresh water! The water problem became serious.

A well was dug in the center of Lumberton near St. Francis Church, but that water turned out to be sour, sulfide-smelling, and malodorous. Another well was dug east of town in 1964 (now the site of the new water treatment plant), and it, too, was foul. The reason: deep under the ground the water passes through soft coal and shale beds.

So the town looked for alternatives for a satisfactory drinking supply. Near-by towns - Dulce, New Mexico, and Chama, New Mexico, did not have enough fresh water for themselves, let alone for Lumberton. So Lumberton's 30 families were forced to haul raw water from the Navajo River, five miles away. Meanwhile, over the years, the town had qualified for several federal grants to help clean up its water supply, but the techniques tried, failed to remove the noxious odor and taste. Then, in early 1977, the Office of the Governor, State of New Mexico, contacted Victor Kollman who was experimenting with algae for water treatment. A biological treatment system was designed and the wheels in the Governor's Office began turning as funds were made available for construction of the first "algae-powered" water pretreatment system of its kind, anywhere.

The algae-treatment process, which takes place naturally wherever algae are found growing, is relatively simple. But only recently has man found it possible to duplicate nature's processes. Water which is pumped

from the 360-ft well contains dissolved chemicals and gasses. As it came from the Lumberton well, it originally had a black color due to the suspended particles of coal, but no longer! The larger chunks of coal are now filtered from the well water as it is pumped into a 20,000 gallon degassification pond. In the degassing pond, compressed air is bubbled through the water to remove dissolved methane, ethane, hydrogen sulfide, carbon disulfide, and carbon dioxide gasses. The degassed water is then pumped, as needed, to a 20,000 gallon algae culture chamber where algae grow rapidly and remove sodium bicarbonate and other dissolved chemicals which also make it unsuitable for drinking.

The algae are then filtered from the water as it passes into a 5,000 gallon clearwell. In this tank, the processed water is treated with ozone gas and ultra violet light to sterilize the water and lower its pH. The processed water, now suitable for drinking, is transferred to a second 5,000 gallon tank where the pH of the water is further reduced by the automatic addition of acid. The water then passes through a microfilter, is chlorinated to prevent bacterial contamination, and is pumped to the town's 20,000 gallon storage tank a mile away.

An Added Bonus

As an added bonus, the algae which are grown can be used as a food supplement for secondary (animal) consumption or for a fertilizer

The chemical analysis of the well water and algae treated water is shown in the following table. The column showing percentage, of change between the untreated and algae-treated water shows that arsenic, barium, calcium, copper, iron, lead, magnesium, silver, sodium, zinc, chloride, and the carbonates are substantially reduced by the algae treatment. The total dissolved solids are reduced from 1606 ppm to 645 ppm; the pH of the treated water is maintained at 7.8. The treated water meets or exceeds Environmental Protection Agency (EPA) and New Mexico Environmental Improvement Division (NMEID) health standards for a domestic water supply.

This unique biological water purification system provides 60,000 gallons of high quality potable water for Lumberton's residents at a cost of only \$4 per day.

Citizens Delighted

As would be expected, the community's enthusiasm for their new water system is high. Tourists now stay overnight in this scenic area. Best of all, the 120 school children have an alternative to sugar-containing beverages in their high quality drinking water to quench their thirst.

What is Algae?

Algae comprise an extremely important group of organisms. They constitute the primary source of food in the sea upon which all life ultimately depends. It has been estimated that marine and fresh-water algae fix about 10-billion tons of carbon each year, more than that fixed by all land plants. In fresh-water habitats, the significance of algae to the continuance of life is profound, as detergent, pesticide and herbicide manufacturers have recently been obliged to acknowledge. The environmental improving mechanisms of algae have been operative since they first appeared in abundance on earth.

LUMBERTON WATER ANALYSIS

<u>Constituent</u>	<u>Well Water (ppm)</u>	<u>Treated Water (ppm)</u>	<u>% Change</u>
Arsenic	0.022	<0.001	96
Barium	0.260	<0.010	96
Cadmium	0.005	0.005	0
Calcium	2.000	0.930	53
Chromium	<0.004	<0.004	0
Copper	0.242	0.012	95
Fluoride	0.460	0.460	0
Iron	3.890	0.111	97
Lead	0.054	0.010	81
Magnesium	0.629	0.540	14
Manganese	<0.001	<0.001	0
Mercury	<0.001	<0.001	0
Selenium	0.008	0.008	0
Silver	0.022	<0.001	96
Sodium	520.000	200.000	62
Uranium (U ₃ O ₈)	<1 x 10 ⁻⁴ ppb	<1 x 10 ⁻⁴ ppb	0
Zinc	0.112	<0.001	99
Chloride	50.	4.	92
CO ₃	10.	8.	20
HCO ₃	1020.	430.	58
Total Dissolved Solids	1606.	645.	60
pH	8.9	7.8	-

Algae Helpful in any Municipal Water System

Lumberton is no longer the only community with algae purified water; others are planned and one is presently under construction in Chama, New Mexico, less than 20 miles east of Lumberton. Chama's wastewater treatment plant, when complete, will treat 75,000 gallons of raw sewage water daily. The nitrogen and phosphorous cycles will be interrupted, the recycle water will be raised to drinkable quality, and the algae produced will provide, as well, a suitable secondary food supplement.

(This series on algae to be continued in the next issue.)

Blue-Green Algae: A Manna For The Millions*

(Part III of a Series)

For centuries it has been the dream of human beings that man could one day produce infinite supplies of nutritional energy from air, water, and light. In the early part of the 20th Century, a German microbiologist discovered *Chlorella*, a unicellular fast-growing green algae, which was hailed by many as a possible answer to producing unlimited supplies of nutritional energy. During the Second World War plans were formulated in the United States, Japan, Germany, and the USSR for the industrial mass production of *Chlorella*. However, the highly nutritious *Chlorella* products have not yet appeared on the market in large scale, due to many factors--mainly because harvesting on an industrial scale has proven to be very expensive.

For the past 15 years, scientists around the world have sought new forms of algae which could be more easily harvested and processed than *Chlorella*. In 1963, a new type of edible blue-green algae was found growing abundantly in the heart of Africa. Since that time, edible blue-green algae have been reported growing in large quantities in lakes in Mexico and the United States. These algae are now grown in closed chambers on a mass scale and are easily harvested, using microsieve filters. Moreover, the nutrient value of most blue-green algae is much higher than that for *Chlorella* and other common edible species. For example, the true protein content of blue-green algae, such as *Spirulina* and *Anabaena*, can be as high as 60 to 70% based on dry weight.

Properties And Chemical Composition

Blue-green fresh-water algae when grown, harvested and freeze-dried, are dark green in color and consist of a fine-grained or fluffy powder, depending on the Processing methods used. They are odorless and are described by many as having a mild natural flavor (unlike that associated with the sea algae--kelp). They are packaged as bulk powder, tablets, capsules, and in Japan, yogurt-like drinks. The average chemical composition of the many types of blue-green algae is as follows:

AVERAGE CHEMICAL ANALYSIS (% DRY WEIGHT)

<u>Constituent</u>	<u>Blue-Green Algae</u>
Protein	65
Chlorophyll	5
Lipid (fats)	4
Carbohydrate	9
Minerals	13
Moisture	3
Crude Fiber	1

Analysis shows that the complexed-chelated minerals present are boron, calcium, chromium, cobalt, copper, iron, magnesium, manganese, potassium, phosphorus, selenium, sodium, sulfur, titanium, vanadium, and zinc. Also analysis shows that blue-green algae are rich in necessary vitamins. The vitamins present in the average daily adult intake of 2 grams of algae (2 teaspoons) are:

Vitamins

(per 2 grams - approximately 2 teaspoons)

Blue-Green Algae

Provitamin A (B-carotene)	1400 USP Units
Thiamin B ₁	0.04 mg
Riboflavin B ₂	0.10 mg
Pyridoxine B ₆	0.08 mg
Cyanocobalimin B ₁₂	4.00 mcg
Ascorbic Acid C	6.65 mg
Niacin	0.73 mg
Choline	9.31 mg
Pantothenic Acid	0.07 mg
Inositol	0.70 mg
Folic Acid	1.00 mcg
d-Ca-Pantothenate	22.00 mcg
Biotin	0.80 mcg
<i>α</i> -Tocopherol E	0.40 mg
Vitamin K*	-

mg = milligrams; mcg = micrograms

While blue-green algae are a good source of vitamins, they contain no vitamin D and have a highly variable ascorbic acid content which depends on the environment in which they grow. (Lesser amounts of ascorbic acid are generally reported for yeast and bacteria.) Even when compared with eggs and milk, which are known to be nutritious, algae are an excellent nutritional supplement.

AVERAGE COMPOSITION OF MILK, EGGS, AND BLUE-GREEN ALGAE

<u>Constituent</u>	<u>Cows Milk %</u>	<u>Chicken Eggs %</u>	<u>Blue-Green Algae %</u>
Protein	28	49	65
Chlorophyll	0	0	5
Lipid (fats)	28	44	4
Carbohydrate	32	3	9
Minerals	6	4	13
Moisture	6	-	3
Crude Fiber	0	0	1
Kcal/g	5	6	6

Controlled Growth Factor

While photosynthesis takes place in blue-green algae, a complex of chemical compounds is synthesized simultaneously with the carbohydrates, lipids, proteins, nucleic acids, and vitamins. The exact compounds which make up this complex have not yet been determined by scientists, but because of its growth-promoting factors, it is called "Controlled Growth Factor" (CGF). The CGF found in certain types of fresh-water microalgae is water soluble and is easily extracted from blue-green algae. CGF is separated into four fractions, each having specific effects on enhancing the growth of certain microorganisms. CGF has the following chemical properties: it has maximum optical absorption in the ultraviolet region (260 nm) of the electromagnetic spectrum; it is a mixture of sulfur-containing nucleotides (nucleic acids are larger units of nucleotides), and peptides (small proteins) which are chemically complexed into units. The nucleotide portion of the CGF consists mainly of the important nucleic acid bases adenosine and cytidine. The molecular weight of the nucleotide-protein complex, which we believe provides some of the long-term energy stimulation when eaten by man and animals, is less than 15,000. The most nutritionally effective ingredient of the blue-green algae is the contained CGF, and it has been shown to ensure the proper vital cellular metabolism and functions in man.

What Are Algae Used For?

The processing of algae is just as important as the product itself. Considering the health and energy giving qualities of algae, it must be recognized that the method used to dry the algae after they have been grown and harvested is critical if the beneficial factors (CGF) are to be retained.

The Kanembu natives of the Lake Chad region of Africa have traditionally harvested and eaten algae. They use a processing method similar to that used by the Aztec civilization to remove the blue-green algae, *Spirulina*, from Lake Texcoco. The algae are gathered from the lake in porous cloth bags and allowed to drain. They are then formed into large flat cakes on the sand and dried in the sun. As the blue-green algae

gels, they are smoothed by hand and marked off into squares. When most of the water has evaporated or seeped into the sand, the squares are pulled up, dried further on mats, and cut into brittle cakes. The Kanembu then eat the algae which is called "dihe," after it is cooked in a sauce of tomatoes, chili peppers, and various spices. The algae sauce is then poured over millet. Unfortunately, much of the chlorophyll and other factors are lost by the hot sun/sand drying.

Two drying methods for processing algae are currently in use elsewhere. They are: 1) spray-drying which involves the use of high temperatures (500 to 600°F), and 2) freeze-drying which employs low temperatures (32°F) and reduced pressure (absence of air). Due to the much higher costs of freeze-drying, this process was largely abandoned for processing algae until our efforts to provide a product with all the "beneficial factors" intact dictated its use. As far back as 1921, Robert McCarrison, MD, F. M. Pottenger, MD, D. G. Simonsen, PhD, and W. A. Price, DDS, demonstrated the destructive processes involved when foods are processed at high temperatures. They also showed the degeneration of primitive peoples that adopted "civilized" diets and demonstrated a correlation between societal decay and diet. The experimental information obtained by these early nutritional investigators continues to be substantiated as useless diet fads sweep the U.S. like a plague. And, almost everyone is overfed, yet undernourished. Eating algae can change man's insatiable appetite for self destruction.

With such factors as poor soils producing low-quality low-energy crops today, heat-processed and refined food, and even the lack of food, algae, which have been grown in sunlight and natural water, is perhaps the most significant and feasible way to dramatically improve any diet form on earth. Algae may provide the necessary life force modern man needs to maintain a personal "sense of well being" and "Health Energy." The need in personal and social ills is sustained energy to meet the increasing onslaught of metabolic disorders which have seemingly unknown origins.

Growth-Promoting Effects

When algae, or a water-soluble extract of them are added to a suspension of *Lactobacillus*, lactic acid production is accelerated. Using an extract of algae, a soft drink containing *Lactobacillus* (not yet available in this country) has been manufactured. The growth of the so-called "friendly bacteria" is accelerated in the gut of humans when algae are eaten daily.

Animals which were fed a diet of whole-dried algae showed accelerated growth rates when compared to those raised on normal laboratory rations. Yamagushi, et al [Japan Medical News, 1997, 25 (1965)]. and his coworkers observed greater weight increases and a higher percentage of viable offspring in mice, rats, swine, chickens, and silkworms. One study from a sample of Japanese school children who had been given 2 grams of algae every day for 112 days, indicated that this dietary supplement provided weight and height increases greater than in the control individuals.

A young Los Angeles mother describes her three-year old's reaction to algae:

"My three-year-old son, who had visited the doctor on the average of every other week because of colds and tonsillitis, started using algae along with me. Before using the algae, he was on antibiotics at least once each month. Since starting the algae, his colds have been less severe and less numerous, and he is off antibiotics. To date, he has not had a cold or tonsillitis in over a year. He likes the taste so well he asks me for it if I forget to give it to him."

And reports from Japan indicate babies love algae as a food supplement when consumed as a liquid.

Medical Effects

Published reports involving the clinical and biomedical use of algae are few; however, those that have been completed in controlled situations show encouraging results. Most of the clinical studies performed to date have been done in Japan and have appeared in Japanese journals; thus, the results of their work have gone virtually unnoticed by Western Physicians. However, several U. S. medical practitioners presently use algae in their practice. All have had excellent results with the administered cases. The algae are given to the patient as a dietary food supplement in the form of capsules, tablets, powder, or liquid. No claims can be made in the U.S. regarding the efficacy of algae although medical people in other countries are using algae as a preventive and cure for disease and metabolic dysfunction. However, general improvements by medicals in other countries follow.

Treatment of Vascular Blockage

Algae have been used to eliminate arterial blockage when by-pass surgery has been indicated. For example, a 68-year-old woman went to her family physician complaining of severe pain in the left leg and an inability of the limb to support her weight for longer than a few minutes. Her physician reported after thorough testing that she had no arterial pressure in the left femoral artery and that a blockage had occurred in an iliac artery. He suggested an arterial by-pass to alleviate the problem. But, due to her reluctance to have surgery, he agreed to place her on a suggested diet of algae (2 grams daily), tomato juice, specific meat protein, natural blue Indian corn, and specified amounts of distilled water for a period of three weeks. If, however, at the end of the three week period no improvement in arterial pressure was detected, by common consent of doctor and patient the woman would have surgery as suggested. Much to the physician's amazement, within the experimental time frame, the arterial pressure in the femoral artery returned to normal and the patient's blood pressure dropped substantially. The patient, after three months of continued algae supplementation to her usual diet, developed normal use of the leg and there is no indication that surgery will be needed in the future.

All physicians and chiropractors who have used algae on their elderly patients report a rejuvenatory effect on the circulatory system in that the contained enzymes, gasses, and blood pressure become similar to those of young adults.

Treatment of Gastrointestinal Ulcers

Yamagushi administered 2 grams of algae daily to patients with gastric ulcers, duodenal ulcers, and chronic gastritis. Symptoms such as stomach pain, suppressive feelings in the stomach, pyrosis, and belching were eliminated. *All gastric ulcers* and cases of *chronic gastritis* were reversed; seven of nine cases of duodenal ulcer were reversed completely, and other two cases showed marked improvement. Saito, T., et al [Medication and New Drugs, 3, 3 (1966)], have used microalgae, applied topically, in the treatment of refractory cuts to promote healing and stop bleeding. They report fast healing and almost immediate cessation of bleeding. A Los Angeles woman describes her relief from tooth extraction in the following manner:

"I am writing this letter to share with you my excitement with the algae. It started when a close friend suggested that it might help the healing process after having my four wisdom teeth extracted. The night after oral surgery, I applied the algae to the surface of the gums and almost immediately the bleeding stopped. A week later, I returned to the oral surgeon to have my stitches removed. He was truly amazed at the rapid healing of the gums. The algae not only promoted the rapid healing of my gums, but also increased my energy."

The successful *control* of Vincent's Angina (trench mouth) and advanced pyorrhea using chlorophyll extracts had been reported.

Leukocyte Loss Prevention

X-ray radiation or mitomycin injection in the treatment of cancers or prevention of its post-surgery recurrence normally brings with it a decrease in the normal leukocyte levels. (Saito, T. et al *Medication and New Drugs*, 3, 61 (1966)), have reported that the oral administration of algae decelerates this loss and serves for a quicker return to normal blood levels Blue-green algae (2 to 3 grams daily), when administered to several U.S. patients recovering from cancer surgery and while receiving X-ray treatment, have experienced reduced symptoms of nausea and have had increased levels of body energy for a quick return to normal activities.

Treatment of allergies

Takuma, T., et al [*Pediatric Clinics*, 15, 10 (1962)], decolorized green algae and used it to treat milk allergic infants. The allergenic symptoms were eliminated. Takuma and coworkers also used the algae to treat eczema resulting from allergenic reactions to soybean milk.

We have used blue-green algae successfully to reduce chronic hypersensitivity to foods. A young lady reports her progress this way:

"I have been eating algae for about six months now and have noticed several physical changes--all for the better. Having suffered from hypoglycemia for many years, I now have a normal, stabilized blood sugar level. The algae seem to have increased my metabolism and given me renewed energy; with the proper diet, I have lost 25 pounds in six months.

The algae have markedly decreased my sensitivity to food. I used to be quite allergic to dairy products, but now I can tolerate them quite well.

I really think the algae is great, and it has done a lot for me. Thanks for telling me about it."

Algae powder has been used in the U.S. to alleviate seasonal allergies due to pollens. The algae is pulverized into a fine dust and placed in solution and sprayed into the lungs through the nostrils using a nasal atomizer. The congestive symptoms have disappeared after a few days of treatment. The symptoms, in all cases, did not return after discontinued usage. However, these patients continued on a course of 1 to 3 grams oral ingestion of the same algal material.

Many informal reports by physicians who have used microalgae to treat obesity, hypertension, muscle tone, fatigue, hemorrhoids, viral infections, and alcoholism point to the efficacy of its use as a pharmacological agent

All of the human and some animal patients with whom we have been associated and who have been suffering with a severe biological dysfunction have been placed on a controlled daily diet consisting of 1 to 3 grams of algae, fish and/or poultry (about 20 to 40 grams protein), blue Indian corn*** (which has been baked as cornbread), two boiled eggs per day, two baked potatoes, and three 8-oz glasses of tomato juice. Since the algae "normalize" the carbohydrate metabolism almost immediately, it is important that adequate amounts of carbohydrate, lipids, and protein be made available to provide the sustained energy that is made available through increased assimilation and availability of stored and ingested foods. Normally healthy individuals need not alter their diet in order to experience the benefits of this tremendous "Energy and Health Giver."

For further information on how you may enjoy the many benefits of blue-green algae, write KLA LABS, Inc., 3460 Oak Glen Drive, Hollywood, CA 90068, or call (213) 851-3959. An introductory supply of encapsulated and/or powdered blue-green algae will be mailed to you upon request (120 capsules/250 -mg each - \$15.00, or 30 grams powdered algae - \$14.00).

*Manna, according to historical information from the Mayan Civilization, means "Spiritual Energy."

**Vitamins E and K are synthesized in the mammalian body from the phytol fraction of the chlorophyll molecule.

***An article describing blue corn will appear soon in *Good Health-Keeping*, the PPNF newsletter.