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CHLOROPHYLL:

A FOOD ESSENTIAL

Chlorophyll is a fat soluble pigment, the green coloring material in plant leaves. It is naturally associated with the fat soluble vitamins of the leaf, the vitamin E complex, the K complex, the A complex, and the F complex the most important factor of which is also known as the X factor of Dr. Weston A. Price (only found in young seedlings during the period of rapid growth).

If the chlorophyll is to be made water soluble, it must be separated from these synergistic factors, reduced to a chemically pure (refined) form, and the magnesium molecule it carries be partly substituted by copper. The chlorophyll then becomes of a bluish hue instead of green, but will dissolve in water. The natural form is insoluble in water..

Paul de Kruif in August (1950) "*Reader's Digest* writes about chlorophyll as "nature's deodorant." He tells us that 100 milligram pills of the water-soluble form counteract B.0. and halitosis if used regularly, and are "harmless." This amount of the synthetic copper-chlorophyll could well be toxic, and we feel that 10 milligrams a day would be the limit of use for such a product, if to be taken day in and day out as it were. The natural fat soluble complex, we believe, would fall under Paul de Kruif's idea of a harmless product. Copper is a dangerous trace mineral to gamble with in dosages of more than a few milligrams a day. Foods or water contaminated with copper are known to be specifically destructive to the optic nerve, blindness having been caused by the use of hot tap water (used to make coffee) carrying traces of copper from the coils of the water heater. (The makers of these heaters tell us not to use the hot water for cooking, as some kinds of water take up copper more readily than others.)

Chlorophyll has two definite effects when taken into the human economy. It destroys guanidine on contact, and promotes the elimination of cholesterol.[2]

Guanidine is a poison that is produced by the breakdown of phosphagen. It precipitates calcium[2] and the function of the parathyroid is to eliminate guanidine and restore the presence of the otherwise precipitated calcium in the body fluids. The guanidine is disposed of by its anabolic regeneration into phosphagen. Phosphagen is dipotassium-creatine-hexote-phosphate, and is the energy source for all mammalian dynamics. The male sperm, for instance, is loaded with phosphagen as a power source, just as a loaded torpedo has a compressed air tank or charged storage battery to take it to its destination. That is why the male economy never wastes creatine in the urine, while that same creatine is a normal component of the urine of the female. (Here is the first explanation offered for this heretofore mysterious phenomena.) (More information on this in *Protomorphology*, Lee & Hanson, Lee Foundation, Milwaukee.)

Phosphagen is so easily broken down that simple mild trauma or heat releases its components, which are highly irritating to nerve endings. The prick of a pin or a drop of hot water causes pain by this reaction, we believe. (Discussed in *Vitamin News*, pp. 5 and 6, 1933.) Free guanidine is probably the main toxic agent in severe burns. Chlorophyll acts much like Vitamin F in treating burns. It nullifies the pain; the quicker it is applied after the burn the less the severity, for

the toxic agents are destroyed before they can do much damage. Chlorophyll applied to extracted tooth sockets stops the same type of pain; the agonizing, irritating pain that keeps the patient awake, that is so hard to alleviate with narcotics. Vitamin F restores the diffusible calcium that is precipitated by guanidine, so its parallel action is rational. Vitamins D and F operating as a complex, as in cod liver oil, are obviously paralleling the action of parathyroid, both protecting the blood calcium levels (heretofore known to be parallel but without a clue as to the biochemistry). Another puzzle is cleared up — castrated animals are known to be immune to tetanic seizures if their parathyroids are removed. Since the male hormones promote the retention of creatine and guanidine for building phosphagen for the sperm cells, the parathyroid is essential as a creatine catalyst — and as this catalysis of guanidine into creatine and the prevention of excretion of creatine take place in the kidney, we here have the reason for the mysterious fact that parathyroid function is confined to kidney reactions. Prostate phosphatase is probably a partner in this phosphagen synthesis. It is significant that prostate disease seems to be a Vitamin F deficiency state in most cases. (See *Lee Foundation Report No. 1*, "Vitamin F in the Treatment of Prostatic Hypertrophy," 1941.) (We wish to report that vitamin F is now a recognized member of the vitamin family — see the *Annual Review of Biochemistry,* 1949, page 422. First introduced by the Vitamin Products Company in 1934 as a calcium metabolizer and synergist of vitamins D and E.)

The other known effect of chlorophyll — the elimination of excess cholesterol — is of great interest. Cholesterol is the material used in cell activity as a regulator (with lecithin) of cell wall permeability. If an excess becomes deposited by reason of a failure of the proper balance of the body fluid fat controls (the lipotropic factors), there is an increase in blood pressure, and an increase in sedimentation rate. (Betacol is a concentrate of the lipotropic factors from beet and cane molasses. Its major use is for control of high sedimentation rate.)

The sedimentation rate is high in most toxic states — pregnancy, chronic constipation, arthritis, infectious disease. Chlorophyll seems to be a synergist of the lipotropic factors. These include the cereal phytates (the rice diet for hypertension is a success we feel only because it supplies phytates that afford inositol and orthophosphoric acid after digestion), inositol, betaine, choline and lecithin. We feel that the natural complexes of these lipotropic factors are far more potent, quantitatively, than the pure forms. It is hard to get a patient to take enough choline to accomplish the desired purpose. But the natural complex is not needed in more than one tenth the volume to get the same result, according to our findings.