Fifty Years of Research on Ascorbate and the Genetics of Scurvy:

From a Better Flavored Beer To Homo Sapiens Ascorbicus

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One thing certain in any long-term research program is that no matter where you start, you have no idea how it will end. In 1934, as head of a newly formed commercial enzyme and fermentation research laboratory, I had the opportunity to investigate the problem in industrial technology of improving the flavor stability of packaged beer. The problem was successfully solved by using the unique chemical properties of a new substance discovered and described only two years earlier by Albert Szent-Gyorgyi, M.D., Ph.D., — Ascorbic Acid. I went on to be awarded the first United States Patents on industrial uses of ascorbic acid in 1939, while Albert Szent-Gyorgyi received the Nobel Prize in Medicine in 1937 for his discoveries. I had not the slightest inkling at that time, that thirty-one years later in 1965 I would be describing a hitherto unrecognized human birth defect due to the presence of a mutated defective gene in the human gene pool.

If anyone asks me the embarrassing question, "What took you so long?", my answer is the lack of proper funding for my medical work. My industrial sponsors were not interested in the genetics of scurvy, and what do you do when you are two centuries ahead of the medical grant peer reviewers who hold the purse strings? I did the best I could on my own time using my own meager funds.

In the period 1934 to 1965, one research idea led to another and many biochemical industrial and enzymatic problems were solved, resulting in about sixty technical publications and a score of U.S. Patents.

I early became aware, from my library research on the medical aspects of ascorbic acid that the recommended low daily intakes, the so-called "RDA's", of the multifunctional ascorbate-ion, which most everyone succumbing to the misleading 1912 nutritional propaganda regarded as the trace food substance, "vitamin C", seemed far below what a chemist would expect to be required for optimum reaction rates for a wide variety of vital biochemical functions in a 70 kg human. Besides, I searched the literature of the nutritionists, who with the unlimited financial backing of the food industry, had dominated the field of scurvy research in the 20th century. I could not find

This is the paper Irwin Stone was to present at the annual symposium of the Academy of Orthomolecular Psychiatry in Los Angeles in May. His sudden and untimely death occurred soon after he arrived at the conference. Tributes to Dr. Stone and to his colleague, Dr. Klenner appear on page 285.

a single paper that reported a properly designed, long-term double blind test to determine the optimum daily human requirements for ascorbic acid in health and disease and under a variety of stresses. Even now, over forty years after commercial pure ascorbic acid became available, nutritionists have not supplied us with this vitally important critical data. Instead, they have become so locked-in to their antiquated 1912 nutritional hypothesis, that they assume that scurvy can only be cured by dietary means by consuming a "normal" diet with plenty of fresh fruits and vegetables. The actual levels of ascorbate in foodstuffs are so low that when they calculated the adult RDA's they arrived at figures varying from 45 to 75 milligrams of ascorbate (vitamin C) a day, for the past several decades. This minuscule daily RDA is published, with a new edition every five years, by the National Academy of Sciences in Washington, D.C. in the publication entitled "Recommended Dietary Allowances", which has a semi-official status and is the bible for the nutritionists and the Food and Drug Administration. The latest edition gives the adult RDA for ascorbic acid as 60 milligrams a day, which they claim includes a "factor of safety". For overcoming the stresses of pregnancy, they recommend adding another 20 milligram intake for the pregnant female. More about this later when we discuss the Sudden Infant Death Syndrome.

Two M.D.'s who early and independently recognized the physiological inadequacy of these minuscule daily ascorbic acid intakes were the scholarly Canadian physician, William J. McCormick, M.D., who had been practicing medicine since 1904, and the Megascorbic Medical Pioneer, the Reidsville North Carolina, "country doctor", Frederick R. Klenner, M.D. Dr. Klenner saved his own daughter from death and paralysis in the 1947 polio epidemic with mega doses of ascorbate. Both these great physicians published their views and case histories widely and I had the good fortune to meet both of them. While their innovative views fell upon the deaf ears of orthodox medicine and were completely ignored, they made a lasting impression on me and were a great factor in my continuing to work in this strange and frustrating field of orthodox medicine, where the bulk of the practitioners seemed to have no desire to learn anything new and innovative, especially from a non-M.D. chemist.

Since the 1930's, when ascorbic acid first became commercially available, I and my family became our own guinea pigs, experimenting with the effect of these mega doses on our health and well being. As the prices of the ascorbate dropped our daily intake rose. I also early developed a megascorbic procedure for aborting the common cold, which in my tests was more than 95 percent effective. I haven't had a cold in over forty years. Starting about the mid-1940's, I had my laboratory repackage ascorbic acid and sodium ascorbate in four ounce bottles which we sold to our fellow employees at cost. I noticed a drop in absenteeism due to sickness, and when they were on the job they seemed to have more stamina, were less tired and seemed to be smarter than their scorbutic counterparts.

In May, 1960, at a meeting in Minneapolis, I was elected Vice President of the American Society of Brewing Chemists, an organization in which I had long been active. This meant that I would become President in 1962-1963. After the meeting we decided to vacation in the Black Hills of South Dakota and see Mount Rushmore, but we never got there. Outside of Rapid City, South Dakota, we had a very serious automobile accident when a drunk driving on the wrong side of the road drove her car at 80 miles an hour into a head-on collision with ours. Both my wife and I were seriously injured and the only reason we survived was the fact that we had been regularly taking daily megadoses of ascorbate for decades. We never went into the deep shock that kills most accident victims and I was able to experimentally verify ascorbate's great healing power and survival value by taking about fifty to sixty grams a day of ascorbate during our hospitalization. My wife recovered quickly and acted as my "nurse". I went through five serious operations without any surgical shock and my multiple bone injuries healed so fast that we were able to leave the hospital in less than three months; take a 2,000 mile train trip home and I was back at work running my lab in two months more. I left the hospital, under my own steam, on crutches, walking on legs that the doctors originally

predicted I would not be able to stand on for at least a year. My larynx was damaged by part of the steering wheel inflicting a deep throat wound, and the doctors despaired that I would ever talk again. With the help of megascorbics, this problem slowly resolved and I was able to assume the public speaking duties of the President of a Scientific Society with a voice of a slightly different timbre. If you ask my wife, she will tell you that I now talk too much!

Most important, this accident impressed on me the need for immediate publication of the medical data on Megascorbics and the genetics of scurvy that I had been collecting for years. Originally I had planned to publish my medical ideas after I would be mandatorily retired at age 65 from my industrial connections.

The first four papers describing the genetics of scurvy and the human "inborn error of carbohydrate metabolism", *Hypoascorbemia*, appeared in the period 1965-1967. Hypoascorbemia is a potentially-fatal genetic liver-enzyme disease, a human birth defect caused by a defective gene in the human gene pool for the synthesis of the active enzyme protein, L-gulonolactone oxidase (GLO). This defective gene appears to be present in 100 percent of the human population and is the biochemical reason that the human liver is unable to complete the normal stress-related mammalian biochemical conversion of blood sugar, glucose, into ascorbic acid.

This is an extremely vital biochemical pathway that proceeds normally and continuously throughout the lifetime of the non-Primate mammals carrying the intact gene for GLO, producing large stress-related daily amounts of ascorbate in the liver, which is funnelled directly into the blood stream to give the necessary high blood and tissue levels of ascorbate required for the maintenance of biochemical homeostasis throughout the body.

Mammals with the intact gene for GLO also have an inherited biochemical feedback mechanism that increases the liver synthesis of ascorbate in response to various stresses. This feedback mechanism was a great factor in assuring the survival and dominance of the Earth by the mammals during the past 165 million years of evolution. Some of my later papers indicate that a large group of mammals became extinct during this evolution because they could not make enough daily ascorbate for survival. Homo sapiens have paid a very high cost in deaths, disease and misery during the past few million years of evolution in trying to survive without the benefit of the intact gene for GLO. I regard Homo as our most endangered mammal, scheduled for extinction in the 21st Century from overpopulation pollution, unless humans take evolutionary destiny into their own hands and convert themselves into the robust human subspecies, Homo Sapiens Ascorbicus. Read my papers on "Homo Sapiens Ascorbicus"; I've published several since 1979.

I would like to show you at this point an exhibit of three test tubes. The first tube contains the amount of ascorbic acid that a 70 kg human produces in its liver each day. It is an empty tube. The second tube is over half full of ascorbic acid, which is the 13,000 mg that an unstressed 70 kg goat produces in its liver each day. Under stress the test tube would not be large enough to hold all the ascorbate produced. The small third tube contains the current RDA for ascorbic acid — 60 milligrams, barely enough to cover the bottom of the tube. This is the daily intake for 70 kg human adults recommended by nutritionists, physicians and the Food and Nutrition Board of the National Academy of Sciences in Washington, D.C. My recommendations for the daily intake of ascorbate would be close to the amounts synthesized daily by the mammals with the intact gene for GLO. In times of stress the intakes are increased and the extent of increase can be estimated by the bowel tolerance procedure of Dr. Robert Cathcart. I have been taking about 20 grams of ascorbate a day for many years which is over three hundred times the current RDA, enjoying full health during this time. In my 1983 paper on the effect of megascorbate on Aging and Alzheimer's disease, I cite as shining examples of the value of this daily megascorbic regimen in maintaining a long healthy active, disease-free life: they are my long time friends and colleagues, Albert Szent-Gyorgyi, 91; Linus Pauling, 83; Frederick Klenner, 77; and myself, 77; all still working hard and none showing the slightest

trace of Alzheimer's.

I regard as one of the major blunders of 20th Century medicine the full acceptance of these inaccurate RDA's without conducting long-term double blind studies on their accuracy and effectiveness in health and disease. This blunder is further compounded by the medical schools teaching these antiquated ideas on scurvy to our future doctors, two decades after I showed that scurvy was a deadly problem in medical genetics. For the first time in millions of years, it was possible in the early 1940's to "cure" scurvy when inexpensive pure ascorbic acid became commercially available. Medicine did nothing at this time because there was no one around at that time with sufficiently accurate knowledge of the genetics of scurvy to guide them. This excuse was eliminated with the publication of my 1965-67 papers on the genetics of scurvy, but they still took no steps to fully correct this human birth defect, and eliminate the health threatening effects of this widespread iatrogenic epidemic of Chronic Subclinical Scurvy.

Except for medical friends, colleagues and many sick non-medical lay persons, the bulk of the medical establishment ignored this work and to them it was "business as usual." They never gave themselves the opportunity to observe the improved therapeutic results they would obtain when their sick patients were free of the debilitating lifelong Chronic Subclinical Scurvy.

In the 1960's I interested Dr. Linus Pauling in my early work and my technique for aborting the common cold. He confirmed my work and his life has never been the same since. This led to the publication of his 1970 book, *Vitamin C and the Common Cold,* which in later editions became *Vitamin C, The Common Cold and The Flu.* In 1979, *Cancer and Vitamin C,* appeared which described his cancer collaboration with Dr. Ewan Cameron.

I started publication of my megascorbic leukemia ideas in 1974. In 1975, as a result of my collaboration with my good friend, Wendell O. Belfield, D.V.M., we wrote a paper showing the need for and the good results obtained with megascorbic therapy in cats and dogs, even though they had the intact gene for GLO. We found that cats and dogs were poor producers of daily ascorbate in their livers. They made about one-fifth the daily amount produced in other mammals with the intact gene for GLO. For many years, Wendell had been independently using Megascorbics with great success in canine distemper (viral encephalitis) and in hip dysplasia in large dogs. He also recently megascorbically solved the problem of cat leukemia, the number one killer of pet cats. He, like his counterparts in human medicine, has had his problems with the veterinary medical establishment. His two books on dogs (1981) and cats (1983) are classics in maintaining these pets in good health.

My cancer suggestions were published in 1974,1976,1977 and 1981. In my 1983 paper, presented at the Orthomolecular Medical Society meeting in San Francisco, I reported on the remarkable case of Joseph Kieninger, chemist and patent attorney, terminal cancer victim turned successful therapist. Joe is a prostatic cancer victim, whose cancer has spread throughout his body. He was declared terminal in 1977 and given about one year to live. By his innovative daily treatments both systemic (beginning with 80 to 100 grams sodium ascorbate a day, every day) and topical megascorbic applications, he has survived to the present, living a pain-free, relatively normal life, going to work each day and feeling good most of the time. I believe Joe is a prototype for survival in terminal disease and has shown us a new way of handling these highly scorbutic patients that Medicine has given up, and prevent them from dying of scurvy. Joe, a keen observer, wrote up and submitted his case history to the *New England Journal of Medicine,* but they returned his manuscript and refused publication. If I am correct in thinking of Joe as a terminal disease prototype, then this would put a different complexion on the Hospice Movement. Instead of terminal patients going to a hospice to die in dignity, they would go to be taught the inexpensive megascorbate regimen on how to *live* in dignity, and then go home and practice this regime for the rest of their lives.

No discussion of cancer would be complete without mention of my friend and colleague, Henry L. Newbold, M.D., of New York City, who in 1979 published his book *Vitamin C Against Cancer* (Stein and Day,

New York). It is now in an inexpensive paperback edition and should be read by every cancer victim as a "second opinion"; it may be life saving.

In 1973 I became acquainted with the work of Archie Kalokerinos, M.D. and Glen Dettman, Ph.D., of Australia on their mega-scorbic solution of the Sudden Infant Death Syndrome (SIDS). SIDS was also solved earlier in a similar manner by Dr. Klenner. My work indicates that because of the poor correction of the birth defect for GLO, every baby is born after a nine month bout with intrauterine scurvy. The first result of this is the Sudden Infant Death Syndrome. Klenner and Kalokerinos found that by increasing the daily intake of ascorbate by the pregnant mother (15 grams/day) and the neonate (100 mg/day) that SIDS could be eliminated. Publication of this simple, harmless procedure in the Australian medical literature brought down the wrath of the Australian medical establishment on these investigators. They refused to test Kalokerinos' procedure and allowed babies to die needlessly, because there is no other effective treatment for SIDS. I thought that this would never happen in American Medicine, but I was wrong and it is happening here right now. The orthodox medical establishment is the same the world over. About 10,000 babies die each year in the U.S. from SIDS. To stem this slaughter, Drs. Kalokerinos and Dettman have come to the U.S. on biannual nationwide lecture tours since 1976, and they will be returning again in September 1984. Ten years ago Dr. Kalokerinos' book, *Every Second Child*, appeared in Australia. 1981 saw the publication of an American paperback edition (Keats Pub. Co. New Canaan, CT 06840). Since the publication of their book in 1974,100,000 babies have died, sacrificed to medical bias and professional stubbornness and callousness. It is unbelievable.

This really is nothing new to me because I have constantly come up against similar hostility from the Medical Establishment when I tried to have clinical trials conducted after publication of my papers on leukemia (1974), veterinary medicine (1975), smoking (1976), cancer (1976), drug addiction (1977), sudden death (1978), endogenous interferon treatment of cancer and the viral diseases (1979-1981), multiple sclerosis (1982), aging and Alzheimer's disease (1983) and AIDS (1983).