Editorial

Linus Pauling's 90th Birthday
Stanford Court Hotel, San Francisco
February 26, 1991

At a time in life when over 90 percent of people are thinking primarily about their past and have become dependent on their families and friends, Linus Pauling is as busy as ever with his research projects, which he hopes to continue for another ten years. Linus Pauling has never lost a major scientific debate, and I am convinced his twenty-five year activity in developing and promoting Orthomolecular medicine will be crowned with similar success.

Mrs. Hoffer and I found ourselves among 300 of his many friends and colleagues who had come to honor Dr. Pauling and wish him well. Several speakers talked with warmth and affection of Linus and his major contributions. Dr. Richard Kunin spoke about his immense contribution to Orthomolecular medicine, for which he thanked Dr. Pauling on behalf of all Orthomolecular practitioners. He suggested that Dr. Pauling was, in fact, a physician — a healer, even if he does not have a medical degree. I think it would be an excellent idea for some enterprising university to give him an honorary M.D. He already has been awarded many dozens of PhDs.

National Cancer Institute, Washington,
Co-Sponsors Ascorbic - Cancer Meeting

September 10-12, 1990, the National Cancer Institute co-sponsored a meeting on "Ascorbic Acid: Biological Functions and Relation to Cancer". There were thirty-three presenters and eight poster presenters. Based upon the abstracts, it is clear ascorbic acid must be a major component in the treatment of cancer, for it has the following properties.

1. It protects plasma lipids against oxidative damage. In fact, it is considered the only endogenous antioxidant capable of protecting lipids against this type of damage. It scavenges free radicals, destroying them before they reach the membranes. In turn, uric acid protects ascorbic acid against destruction. Since niacin tends to increase uric acid in blood, though not to dangerous or gout-producing levels, it too plays a role in maintaining ascorbate levels.

Adriamycin, used in chemotherapy for cancer, is very toxic as it induces peroxidation of cardiac lipids. Ascorbic acid prolonged life of mice and guinea pigs treated with adriamycin. The authors of this abstract recommend combined use of adriamycin and ascorbic acid in treating patients.

Ascorbic acid also protected both skin and bone marrow against radiation, but it did not radioprotect the tumor.

The degree of protection depends upon the Vitamin C status. Lower levels are less protective. One group of workers found that low levels of ascorbic acid, sufficient to prevent scurvy, did not protect against oxidative damage. Treatment with high-dose interleukin 2 and lymphokine-acti-vated killer cells decreased ascorbic acid plasma levels over 80 percent. In 8 out of 11 patients, levels were so low they were not detectable.

2. Ascorbic acid in vitro has anti-cancer properties. Daily treatment of special cells with ascorbic acid protected them against transformation by methylcholenthrene. It also, in one study, protected avian tendon cells against Rous sarcoma virus.

3. Linus Pauling reviewed in vivo studies from his laboratory. Ascorbic acid decreased the incidence and delayed the onset of malignant lesions (squamous cell carcinoma) in hairless mice exposed to ultraviolet light. In another study, ascorbic acid decreased incidence of spontaneous mammary tumors in RIII mice.

4. Workers at other centers reported that it inhibited incidence and severity of renal tumors induced by estradiol and diethylstilbestrol in hamsters. Combined with Vitamin B_{12}, ascorbic acid markedly increased survival of mice bearing Ehrlich carcinoma and L1210 leukemia. Cobalt (found in Vitamin B_{12}) ascorbate inhibited division of Ehrlich ascites tumor cells. Given to mice, ascorbic acid inhibited

growth of human mammary tumor xenografts. It also inhibited melanoma growth in mice, enhanced the chemotherapeutic effect of levo dopa methylester, and increased survival time. The effect was most prominent in mice on tyrosine and phenylalanine restricted diets.

An interesting epidemiologic review of the literature showed that in 33 out of 46 studies, Vitamin C was protective, decreasing incidence and mortality. Individuals in the top one-quarter had only 50 percent of the cancer risk of those in the lowest quarter.

5. The final conclusion from this meeting sponsored by the National Cancer Institute, is that ascorbic acid has properties which make it an important part of any cancer treatment. And it suggests that the stress of cancer treatments, which deplete the body of ascorbic acid, can be inhibited or prevented by preventing scorbutic symptoms. If it served only this function, ascorbic acid must be used, but it does even more, as our previous study has shown.

In Memoriam - Dr. Willard E. Beebe
Belleville, Michigan; 1915 - 1990

Bill Beebe was one of the earliest Orthomolecular psychiatrists, using vitamins in his practice before Linus Pauling created the word, Orthomolecular, in 1968. He graduated from Wayne State University Medical School. During World War II he was a surgeon in the China/Burma/India theatre. Later he became a psychiatrist and was on staff at Oakwood Hospital, Dearborn, Michigan.

I well remember when Doris and Bill motored to Saskatoon to hear firsthand about the use of vitamins to treat schizophrenic patients. We were together several days while I showed Bill some of my patients who were receiving large doses of Vitamin B_3. We remained good friends and colleagues. Bill returned to Michigan where he helped a large number of patients recover. He attended meetings of the American Schizophrenia Association as a member of our therapeutic committee, and contributed a major chapter to *Orthomolecular Psychiatry*, edited by David Hawkins and Linus Pauling. He was a Founding Member of the Academy of Orthomolecular Psychiatry.

Bill represented a small number of broadminded psychiatrists who were unhappy with the results they got from standard treatment (psychoanalysis, later drugs), and whose dissatisfaction fueled their desire to do better: he found that Orthomolecular medicine fulfilled this desire.

Bill died of heart failure. He had been diabetic for a long time. I like to think his interest in nutrition and nutrients, and his personal use of these substances, added good years to his life and many years of good health to his patients.

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