

# Irwin Stone: Orthomolecular Innovator and Educator

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1907 – 1984

*“Irwin Stone was totally in love with ascorbic acid. On behalf of all humanity, I thank the stars that he was.”*

*–Abram Hoffer, M.D., Ph.D.*

It is odd that, in discussions about vitamin C, the word “stone” typically comes up for the wrong reason. There is one infamous stone that has never existed and another Stone that existed without properly being honored. I refer, respectively, to the world-renowned but entirely mythical vitamin C-caused kidney stone and, more importantly, to the great orthomolecular biochemist, Irwin Stone.

When you pick up a health or nutrition book and need to quickly know if it is any good or not, just look for these two key words: Stone, and Pauling. If a book has negative things to say about Linus

Pauling, it probably omits any reference to Irwin Stone altogether. For it was Irwin Stone who put Linus Pauling onto vitamin C in the first place.

## Beyond “Vitamin”

Over forty years ago, Stone postulated that we humans have inherited a genetic trait to need but not manufacture ascorbic acid. “Irwin Stone,” writes Robert F. Cathcart, M.D., “pointed out the potential of vitamin C in the treatment of many diseases, the inability of humans to synthesize ascorbate, and the resultant condition hypoascorbemia... Stone described the genetic defect whereby the higher primates lost the ability to synthesize ascorbate. This defect is caused by a mutated defective gene for the liver enzyme, L-gulonolactone oxidase.”<sup>1</sup> This innate dependency may be made up for in diet, but not easily. Says Stone: “The present RDA for ascorbate is at least 300 times

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less per unit body weight than the amount of ascorbate produced endogenously each day by other mammals.”<sup>2</sup>

Irwin Stone repeatedly stated that ignoring this fact is fatal. A prime example is Sudden Infant Death Syndrome (SIDS) or Crib Death, which, Stone writes, “has been shown by the Australian workers, A. Kalokerinos and G. Dettman, to be a manifestation of infantile scurvy, due to the fact that all infants, born of mothers who depended solely on their diet as their only source of ascorbate, are born with the Chronic Subclinical Scurvy syndrome after nine months of intrauterine scurvy. SIDS can be prevented by increasing the infant’s intake of ascorbate. This has been known and published since 1977. Yet 8,000 to 10,000 babies die of SIDS each year because the doctors and others involved with the management of these babies permit this annual slaughter to take place because they have become so complacent with scurvy that they refuse to even try this harmless treatment.”<sup>2,3</sup>

### Stone Meets Pauling

Bernard Rimland, Ph.D., writes: “In April 1966 Irwin Stone met Linus Pauling, who found him to be extraordinarily well-informed and convincing. Pauling credits this meeting with Stone as the starting point of his own interest in vitamin C.”<sup>4</sup> Abram Hoffer, who was present at the meeting, adds: “Dr. Stone had assembled a large collection of vitamin C papers. He hated the term “vitamin C” and preferred the more correct term ascorbic acid. Dr. Stone first used the word megavitamin and the word hypoascorbemia. He considered scurvy not a deficiency disease but a metabolic error. I urged him to publish his review of ascorbic acid which he did several years later. Irwin heard Dr. Pauling state that he wished he could live another 25 years because science was making so many interesting discoveries. Dr. Stone wrote to him and told him he could

achieve his goal if he would take vitamin C in megadoses. Dr. Pauling tried it out, was convinced because he felt so much better, and lived another 30 years.”<sup>5</sup>

Stone’s classic 1972 book, *The Healing Factor: Vitamin C Against Disease*,<sup>6</sup> contains over fifty pages of scientific references, making it one of the first, and still one of the best, reviews of megascorbate therapeutics. It is doubtful that many skeptics have been as thorough as Stone has in checking vitamin C literature. His book and published articles summarize the successful vitamin C treatment of infections (bacterial and viral), allergies, asthma, poisoning, ulcers, the effects of smoking, and eye diseases including glaucoma. Ascorbate’s role in treating cancer, heart disease, diabetes, fractures, bladder and kidney diseases, tetanus, shock, wounds, and pregnancy complications is also discussed in the book that the National Health Federation said “may be the most important book on health ever written.”<sup>7</sup>

### Industry and Controversy

Alan Cott M.D. provides a biographical sketch of Stone:

“Dr. Irwin Stone, a biochemist and chemical engineer, born in 1907, was educated in the public schools of New York City, and the College of the City of New York. He considers as part of his education his employment from 1924-1934 at the Pease Laboratories, a then well-known biological and chemical consulting laboratory, first as assistant bacteriologist, then as assistant to the chief chemist, and then finishing his tenure as Chief Chemist. In 1934 he was offered the opportunity of setting up and directing an enzyme and fermentation research laboratory for the Wallerstein Company, a large manufacturer of industrial enzymes... He employed ascorbic acid to stabilize foodstuffs against the undesirable and deteriorating effects of exposure to air and oxidation.

Three patent applications were filed in 1935 and the patents were granted in 1939 and 1940. Thus, Dr. Stone obtained the first patents on an industrial application of ascorbic acid. . . By the late 1950s, Dr. Stone's research on the genetics of scurvy had progressed to a point where it could be said that scurvy was not a dietary disturbance, but was a potentially fatal problem in medical genetics. Ascorbic acid thus did not behave like trace vitamin C but was a stress-responsive liver metabolite produced endogenously in large daily amounts in the livers of most mammals, but not in humans. Between 1965 and 1967 he produced four papers describing a human birth defect existing in 100% of the population due to a defective gene in the human gene pool, the potentially fatal genetic liver enzyme disease, which he named "Hypoascorbemia", as the cause of scurvy. He had difficulty publishing his hypoascorbemia work because the ideas were so advanced and contrary to the existing theories of the etiology of scurvy. . . In his professional career, 1924-1984, he has published over 120 scientific papers and was issued 26 U.S. patents and countless foreign patents."<sup>8</sup>

Bernard Rimland adds:

"In the 1950s it became clear to Stone that humans would benefit from ingesting much larger amounts of ascorbate than the medical and nutritional establishments considered adequate. After he retired from his paid employment and moved to San Jose in 1971, he devoted the rest of his life to studying and publicizing the need for multi-gram daily consumption of vitamin C by humans. Irwin Stone received many awards and honors during his lifetime, including two honorary doctorates."<sup>4</sup>

### School of Very Hard Knocks

Irwin Stone's most intense learning experience with vitamin C literally saved his life. He tells the story himself:

"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 large doses of ascorbate, 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."<sup>9</sup>

Perhaps there is some slight understatement in Dr. Stone's account. His son Steven, a retired patent attorney, adds:

"My parents drove to visit Mt. Rushmore. They never got to see the monument. On the road to Mt. Rushmore, as they were going over a slight rise, they were hit head on by a drunk driver with such force that every one of my father's limbs, except his right arm, was broken. He also had massive internal injuries. Someone performed an emergency tra-

cheotomy on him by sticking a piece of tubing through the hole in his throat and by the time he reached the hospital he had lost most of the blood in his body. Yet he never went into shock. My mother also sustained significant but not so serious injuries. They were both in the hospital from May till August. As soon as he could communicate, he insisted on having vitamin C supplements and convinced those caring for him that that was the reason he survived. They believed him. Subsequently, my father found a research paper that showed that vitamin C supplementation increased impact shock survival in guinea pigs. The injuries affected his mobility to some extent, so he cut back on some of his more strenuous activities and spent the rest of his life researching vitamin C, the results of which are set forth in *The Healing Factor*.<sup>10</sup>

Stone's very hard won knowledge was confirmed, yet again, in 2002, when an *Annals of Surgery* study of over 500 victims of trauma showed that "early administration of antioxidant supplementation using alpha-tocopherol and ascorbic acid reduces the incidence of organ failure and shortens ICU length of stay."<sup>11</sup>

I have personally seen the value of ascorbate in surgical cases. One was my father's first hip replacement operation which, without vitamin supplementation, kept him in the hospital for nearly three weeks. A few years later, before and immediately after the same surgery on the other hip, he took massive doses of ascorbic acid. The second hospital stay was four days.

### Megavitamin Pioneer

Steven Stone says:

"When vitamin C first became commercially available at reasonable prices in the late 1930s, my father started supplementing his diet with relatively large amounts of vitamin C and became convinced that this contributed signifi-

cantly to his health. I remember that in the summers during WWII my mother suffered from allergies and we would have to take weekly ferry boat rides from Staten Island to Manhattan for her shots. I also remember that once she started taking vitamin C her allergies cleared up and she didn't need the shots."<sup>10</sup>

When I asked Steve Stone about the major obstacles to acceptance of his father's observations, he replied:

"One obstacle is insistence on double blind testing to validate the benefits of vitamin C. Each person has different requirements for C, which vary depending on stress. In order to get the full benefit, a person needs to adjust the amount of C being taken depending on stress levels and needs to be able to titrate himself. This is not doable in a controlled double blind situation."

As a result, the vast majority of controlled studies on ascorbate use ineffectively low doses, with inevitably minimal results. Robert F. Cathcart, M.D., terms this "delay by intellectualization" and writes:

"As evidence of the value of nutrients, especially vitamin C, becomes more and more evident to the public, researchers produce a mass of articles on minute aspects of vitamin C. I have been consulted by many researchers who proposed bold studies of the effects of massive doses of ascorbate. Every time, the university center, the ethics committee, the pharmacy committee, etc. deny permission for the use of massive doses of ascorbate and render the study almost useless. Seasoned researchers depending upon government grants do not even try to study adequate doses. All of this results in a massive accumulation of knowledge about very little, which gives the impression that there is no more of real importance to be learned. This accumulation of minutia hides the great effects of ascorbate already known by some."<sup>12</sup>

One such person was, of course, Linus

Pauling. Pauling was not only a vocal and visible supporter of Irwin Stone's work, but also a personal friend as well. Pauling attended Stone's 75th birthday celebration, and at least six photographs of the event are archived at Oregon State University among the Ava Helen and Linus Pauling Papers.<sup>13</sup> In the photos, Pauling is smiling as he shakes hands with Stone.

Another was Albert Szent-Gyorgyi. In a 1982 letter,<sup>14</sup> Stone tells Szent-Gyorgyi of a friend of his who, was diagnosed with prostate cancer at age 44 and then treated with surgery and radiation. A few years later, the cancer had metastasized to the pelvic bone and the patient was declared terminal and given about a year to live. However, Stone writes:

"Since he began taking 80 grams a day in 1979, his well-being has been excellent. He says he feels great most of the time, has also been able to continue working every day and lives a fairly normal life of the years since November 1978 when orthodox medicine said he would be dead. Visually he looks more like an athlete than a terminal cancer patient... In the last few weeks he has been able to improve his well-being by increasing his ascorbate intake to 130 to 150 grams per day! He has been taking oral doses every hour of 5 to 10 grams of a mixture of nine parts sodium ascorbate plus one part ascorbic acid dissolved in water. These doses are well tolerated and within "bowel tolerance" and he has had no trouble from diarrhea except just lately when he had to reduce the 150 grams a day to 130 grams. I believe his case is a classic and a good demonstration that if sufficient ascorbate is given to fully counteract all the incident stresses, then the cancer can be controlled. If given early enough in this disease, then cancer may no longer be a problem. Up to now we just haven't realized how big these daily controlling doses have to be."

Stone adds that the man's doctor

"ran some ascorbate determinations on Joe's blood and came up with the highest blood levels I ever saw. At one point it was 35 mg%! Our so-called "normal" but scorbutic population averages 1 mg% or less, our kidney threshold is 1.4 mg%... I would like to see a crash ascorbate program started on terminal cancer patients using doses in the ranges found to keep his cancer under control. Since these "terminals" have been abandoned by orthodox medicine, they have nothing to lose but their ill health."

An acquaintance of mine took Stone's point very seriously. He had terminal lung cancer, and was constantly coughing up blood such that he had a mostly-red handkerchief in his hand anytime you spoke with him. He was too sick to get out of his recliner. It was in this chair that his life played out, day and night. He could not walk. He was in too much pain to even lie down. He spent the night in his chair. He did not want to eat. But he was more than willing to try what Dr. Stone's friend had tried, and did. He took a level teaspoon of ascorbic acid crystals, about 4,000 mg, every half hour he was awake, day or night. His total daily intake approached 100,000 mg. Within days, he stopped coughing up the blood. If ascorbate had done nothing else, this alone would have been more than enough benefit. But there was more good news within the week. His appetite returned, and he was now able to lie down in the bed. He reported that he was sleeping much better and was in much less pain. Within two weeks, he was able to walk around the house with a cane, and even go out into the yard. His quality of life was extraordinarily enhanced by the vitamin C. He never got diarrhea.

Stone's initial report of such benefit to a cancer patient from oral doses of ascorbate at 80 to 150 grams a day is striking; his report of such high measured blood levels of ascorbate is astounding. It is a clear and uncomfortable challenge to all physicians, dietitians, and governmental bodies that

a sick human organism can in fact absorb quite a bit more than a few hundred milligrams of ascorbate daily.

### A Life Well Lived

Steve Stone says:

“In May 1984, almost 22 years to the day after the South Dakota accident, my parents drove to a meeting of the Orthomolecular Medical Society in Los Angeles. Unbeknownst to my father, he was to receive the Linus Pauling Award for his achievements. He never got the award. He died the night before the meeting. Don’t know if this is comforting, but my dad wouldn’t fly and didn’t like to travel. I was visiting him a couple of days before the trip to LA and he was saying how he didn’t really want to go. That was my last conversation with him.”<sup>10</sup>

Recently, Steve Stone has added that “No autopsy was performed so there is no definitive cause of death. Some thought that choking, contributed to by the injuries to his throat sustained in his automobile accident, was the cause. But others thought a heart attack was most likely and I am in that group.”<sup>15</sup>

In his immensely productive 77-year lifetime, Irwin Stone, building on the work of Albert Szent-Gyorgyi, constructed both the theoretical and practical foundations of megascorbate therapy with such skill that it became the focus of 25 years of Linus Pauling’s life. One testament to the brilliance of Stone’s work is that there are two forewords to his book, *The Healing Factor*, and each is written by a Nobel laureate: one by Pauling; the other by Szent-Gyorgyi. Furthermore, Pauling cites Stone thirteen times in his landmark *How to Live Longer and Feel Better*,<sup>16</sup> published two years after Stone’s death. Irwin Stone was inducted into the Orthomolecular Medicine Hall of Fame at the international *Nutritional Medicine Today* conference in Vancouver, May, 2004. There is no doubt that Drs. Szent-Gyorgyi and Pauling would wholeheartedly approve.

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