One half of Americans take vitamins regularly, according to a Gallup poll (Swift, 2013). Indeed, 78 percent agree that “dietary supplements are a smart choice for a healthy lifestyle” (Council for Responsible Nutrition, 2015). People seem crazy about vitamins (Figure 1).

But does this mean that the population is well informed about the biological function of vitamins, or that such knowledge guides personal decision making about nutrition and health? Perhaps not. Reliance on supplements might actually indicate a poor basic understanding of a complete and balanced diet. Taking high doses of vitamins may also reflect unjustified beliefs about their power in curing various maladies, despite the lack of any substantive scientific evidence. Perhaps we might unravel the pervasive Sacred Bovine that vitamins have some extraordinary powers beyond their very particular nutritional roles?

No biologist, surely, will question the general importance of vitamins or the diseases—such as beriberi, scurvy, or pellagra—that result from their deficiencies. “For example,” as the National Institutes of Health notes, “calcium and vitamin D are important for keeping bones strong and reducing bone loss; folic acid decreases the risk of certain birth defects; and omega-3 fatty acids from fish oils might help some people with heart disease” (Office of Dietary Supplements, 2011). In these cases, the molecular mechanisms involving the vitamins are well known.

But at other times, claims about the efficacy of vitamins are speculative or with no scientific grounding whatsoever. Yet such unfounded beliefs proliferate. Sometimes, with great conviction. But at other times, claims about the efficacy of vitamins are speculative or with no scientific grounding whatsoever. Yet such unfounded beliefs proliferate. Sometimes, with great conviction. Indeed, people can be “crazy” about vitamins. How does such trenchant dismissal of science originate? Why does it persist?

○ Crazy about Vitamin C

One might gain insight from the history of vitamin C and its purported role in fighting the common cold. For many years, popular belief (sometimes masquerading as conventional wisdom) was that megadoses of vitamin C would help cure or prevent the common cold. In most circles, that myth has been properly debunked. Yet in other spheres, its allure remains.

The claim originally came from someone with an impressive scientific pedigree. It was promoted by no less than renowned chemist Linus Pauling, with two Nobel Prizes to his credit. His 1970 book, *Vitamin C and the Common Cold*, became a rallying point. However, subsequent research has repeatedly not supported his enthusiastic claims (Vorvick, 2016).

Why, then, did Pauling support this position? His personal history is telling. At a public lecture in 1966, Pauling expressed his thrill at the prospect of living longer, to experience more scientific discovery. Irwin Stone, a biochemist who attended that lecture, recommended that he take megadoses of vitamin C. Stone had industrial experience with ascorbic acid as an anti-oxidant and food preservative, and had developed an untested theory about the cause of scurvy as genetic, not nutritional. Following Stone's informal advice, Pauling, along with his wife, simply began to take vitamin C. Pauling's personal experience of feeling better seemed to convince him of the significance of vitamin C (Pauling, 1992).

Pauling later surveyed the research literature for properly controlled studies. But his initial beliefs biased his scientific interpretations. A retrospective analysis of sources available at the time shows that Pauling disregarded or discounted negative studies (Knipschild, 1994). Pauling's reasoning thus exhibited two common cognitive errors: primary reliance on anecdotal rather than systematic evidence (coupled with a hope-laden viewpoint), and confirmation bias, the tendency to reinforce initial beliefs (Sacred Bovines, Aug., 2010). Pauling's advocacy reflected a common view of vitamins. A bit of wishful idealization, combined with cherry-picking of evidence, allows for conclusions that seem scientifically sound but are not. The conventional version of the scientific method goes awry here.

Pauling's error about vitamin C is a valuable cautionary tale. Even the scientifically minded are susceptible to unconscious bias. History can help us gain awareness of fads and popular crazes by providing a more remote, neutral perspective. Retrospect can help us tease apart the roles of evidence versus emotional fervor.

○ Crazy about Vitamin D

The craze today seems to be about vitamin D. Consider one headline in the “lifestyles” section of a major city newspaper: “Doctor preaches wonder cure: Vitamin D.” The next line elaborated: “It reduces pain. It reduces illness. There is almost nothing that vitamin D can’t help, and that’s Dr. Greg Plotnikoff’s point” (Marcotty, 2008). Extraordinary claims. Inspiring even. But for that very reason, also suspect. They do not reflect scientific consensus. Such is