

The Hundred Year Lie: How Food and Medicine Are Destroying your Health by Randall Fitzgerald. Dutton, 2006. vii + 294 pp. \$24.95. (hardcover). ISBN 0-525-94951-8.

While not much more than a chemophobic technophobic polemic, *The Hundred Year Lie* (100YL) does come to a number of conclusions with which I agree ...

- Many of the chemical compounds in commercial foods, drugs, cosmetics, etc., have never been tested for long-term safety in humans. Since it is impractical to test all possible mixtures of compounds, we do not know how many or which combinations will affect health. Newly introduced prescription drugs are not necessarily safe or effective.
- Smaller-than-standard doses of most drugs would have a better overall effect in many people.
- The increase in lifespan in the U. S. in the 20th century from 40 to 76 years was accomplished by immunizations, better sanitation, better food preservation, and much better emergency care, not mostly by drugs.
- Antibiotics are prescribed too often and this leads to bacterial resistance.
- Many toxic compounds were banned only after damage had been done.
- Levels of important nutrients in our food, such as magnesium ion, have dropped to the point where taking them as supplements makes sense. This is from depletion of the nutrients in farmland.
- Fluoridation of municipal water supplies has been a colossal error.
- Testing compounds in lab animals often does not give the same result seen later in humans, and *vice versa*.
- Placebos really heal some fraction of people given them, and should be used deliberately more often.

While the book is well-written and easy-to-read, very well-edited, and contains an index, the citations are grouped by chapter, and not numbered in the text by superscripts or in the Harvard system, as JSE is (Day, 1979: 39). As most of you readers know, one of the great conventions of all time to communicate non-fiction and avoid plagiarism has been the use of individually numbered or Harvard system citations. Without this admittedly labor-intensive convention, a mass of citations as endnotes cannot be checked effectively, since it is never certain which one the author has used to back up a claim. Most of the references are to newspaper and magazine articles, newsletters and websites, with very few to peer-reviewed original research journals. So many claims in 100YL are false, as exemplified *ad nauseum* below, that this author's credibility must be doubted and cannot be verified with a reasonable amount of labor.

100YL makes dozens of claims on the horrors of modern life, Throughout the book, claims are made that we in the U. S. and other industrialized countries are

losing lifespan because of gross chemical contamination, processed food with additives, stress, and other features of industrialized life. The multi-thousand-year tradition of herbal remedies, especially in India and China, is held up as superior to synthetic drug use (p. 212ff), partly because these herbals are complex mixtures (p. 214). Author Fitzgerald has missed the number of drug combinations in use, such as for tuberculosis, lowering blood pressure, and to reduce HIV mixtures. Meatless diets and other facets of "detoxification" are touted. Why, then, do Indians have a life expectancy that is 13 years less than in the U. S., and the Chinese one that is 5 years less? As shown in Table 1, most industrialized countries have life expectancies at birth in 2006 of 78 years or more. The majority of Indians are vegetarians.

The findings of Dr. Weston A. Price on which diets were the healthiest for primitive peoples were said in the 100YL to be diets characterized by the absence of processed food (p. 98). In fact, besides eating whole and/or raw plant foods, the healthiest groups prized animal fats, meats, fish, and dairy products (Fallon, 2001).

Many of the topics in 100YL are also covered in *Malignant Medical Myths* (MMM), by Joel M. Kauffman (2006), and by *The Great Cholesterol Con* (GCC), by Anthony Colpo (2006). These books are well-referenced and will be cited in order to keep the total number of citations to a minimum.

A typical theme of 100YL, very common in pseudoenvironmentalist circles, is that any substance shown to be toxic at any high level in any organism is automatically said to be toxic in humans at any low level (p. 4ff). Fitzgerald does not realize that modern instruments can detect substances in parts per billion and trillion. Such small "lifetime body burdens" may not be toxic. Furthermore, he does not recognize hormesis, the tendency of some small dose of almost anything to be a benefit and not a detriment to health. This includes the well-documented radiation hormesis (MMM: 178–200). He is unaware of The International Hormesis Society and its journal, now called *Dose-Response*.

TABLE 1
Rank Order—Life Expectancy at Birth by Country

Country	No. of years	Country	No. of years
Singapore	81.71	United Kingdom	78.54
Hong Kong	81.59	United States	77.85
Japan	81.25	Thailand	72.25
Sweden	80.51	China	72.58
Australia	80.50	Vietnam	70.85
Canada	80.22	World	64.77
Italy	79.81	India	64.71
France	79.73	Afghanistan	43.34
Spain	79.65	South Africa	42.73
The Netherlands	78.96	Swaziland	32.62 (lowest)
Germany	78.80		

Note: Available at: <http://www.cia.gov/cia/publications/factbook/wraorder/2102rank.html>. Updated 11 July 2006, accessed 14 July 2006.

Fitzgerald states: "Most vitamins and supplements sold in the United States that are advertised as natural are actually synthetic chemical concoctions that contain coal tar, preservatives, artificial colorings, and a vast range of other potentially harmful substances" (p. 8). Coal tar is a black viscous mixture of compounds, many of which are odorous. Does your vitamin C contain coal tar? Mine contains cellulose, magnesium stearate and stearic acid (all of plant origin) and silica.

"If you have mothballs in your closet, you are exposing yourself to the carcinogenic pesticide dichlorobenzene ..." (p. 19). Mothballs are naphthalene, a different compound that is one of the major odorous compounds in coal tar, but it is not very toxic.

"If your clothing contains synthetic fibers, you are being exposed to a form of [horror!] plastic, and the newer the clothing, the more it off-gases molecules of plasticizer fumes" (p. 19). The only common polymer, a far better all-encompassing name for high molecular weight materials from repeating small units, that contains volatile plasticizer is poly(vinyl chloride), PVC, and this is not used in cloth made from fibers.

"From 1950 to 2001 the incidence for all types of cancer in the United States increased by 85%, and that was the age-adjusted rate, which means the increase has nothing to do with people living longer" (p. 30). The incidence for two of the most common types of cancer, breast and prostate, actually appeared to leap in the 1980s. This was the effect of widespread adoption of mammography and the Prostate-Specific Antigen (PSA) test. About one third of these early diagnoses were incorrect (MMM: 224, 229). There is no cancer epidemic (Logomasini, 2002).

Silent Spring, by Rachel Carson, 1962, is viewed as a "... watershed event in public policy ..." (pp. 36, 70, 171), which it certainly was. There was no attempt to address the successful attempts to show its lack of accuracy and overkill (Bethel, 2005; Logomasini, 2002).

"Molecules of lead leach from paint ..." (p. 47). In 100YL there is no understanding of the difference between an element, a compound and a mixture as taught in the most elementary chemistry courses. The word "molecule" is used many times instead of the correct word "compound"; the term "a single molecule" is used instead of "a single compound." Lead is an element, not a compound. It is found in old paint as basic lead carbonate (lead white), a compound. It poisoned children who ate paint peels. Along this thought line, aspartame was said to contain three components—methanol, phenylalanine, and aspartic acid (p. 106). Here again, Fitzgerald shows no understanding that aspartame is not a mixture of these three compounds, but rather a compound derived from them, and therefore, is different in properties, including toxicity. His comments are as foolish as telling people not to eat salt because it is a mixture of sodium and chlorine, a pair of very toxic elements, which change drastically on forming their ions to make salt.

The Toxicity Questionnaire (pp. 53–61), with 65 questions, has you declaring

yourself more toxic if you answered yes to questions such as "Do you drink nonorganic coffee?", "Are you often irritable?" and "Do you sometimes feel dizzy?"

Fitzgerald's example of one part per billion was an aspirin tablet in 1,000,000 gallons of water (p. 153). My calculations show this to be off by a factor of over ten; it should have been in 100,000 gallons of water.

Lowering serum cholesterol levels by 10% with a natural product is considered a boon (p. 198), despite overwhelming data that there is no health advantage to doing so (GCC; MMM: 78–104). A mixture of compounds from red yeast on rice is compared favorably with lovastatin with no knowledge that the most active component in the rice is lovastatin (MMM: 88).

"Human bodies weren't designed to absorb synthetic chemicals" (pp. 28, 219). Fitzgerald was not aware of the low toxicity of dimethyl sulfoxide (DMSO), which is less toxic than alcohol. "Once he was convinced that it was non-toxic, Dr. Stanley Jacob has taken an ounce of DMSO orally every day; as of the year 2000, that is 40 years" (Haley, 2000). Synthetic vitamin C is well tolerated. Our bodies are very capable of oxidizing unwanted compounds, often to alcohols, and esterifying them with gluconic acid to get a water-soluble form that will go out in the urine.

"At the level of molecules seen under the electron microscope, synthetic and natural vitamins may look similar to some chemists, but they don't assimilate in the human body" (p. 137). Small molecules like those of vitamin C cannot be seen under an electron microscope; they are too small. Synthetic vitamin C, at least, is identical to the natural version (Pauling, 1986). Chemists use infrared and nuclear magnetic resonance spectroscopy to identify compounds.

"Naturally occurring substances seem to contain a 'lifeforce' that synthetics cannot duplicate" (p. 138). Thus, 100YL "disposes" of two centuries of Organic Chemistry, which began as a separate discipline about the time that synthetic urea identical to the natural product was synthesized from the inorganic ammonium cyanate in 1828, putting a crack in the "vital force" or "vitalism" theory. Oxalic acid was made from cyanogen in 1824, and the death of "vitalism" came in 1845 with the synthesis of trichloroacetic acid from the elements (Noller, 1951). Many other natural products from quinine to progesterone have been synthesized.

Fitzgerald's main push for the use of more natural products avoids mentioning curare, tetrodotoxin and coral snake venom, etc. We must be just as careful of natural chemicals as of synthetic. Some of the problems with natural chemicals as drugs recognized in the mid-20th century, besides lack of patentability, were the variability of concentrations of the desired chemicals (or mixtures) in plants. The age, location, microclimate, soil condition, season of harvest and other variables made and make it difficult to duplicate the dose and composition of the active compounds without prohibitively expensive processing. On the other hand, despite over-promotion and overdosing of many drugs, who among us would want to give up antibiotics that still work, anesthetics, human insulin from recombinant DNA, and many other drugs?

Fitzgerald's implied contention that we are exposed to a greater variety of toxins in 2006 fails to note the greater quantity of them in 1906 (pp. 62–87). Our great-grandparents breathed wood smoke, coal smoke, paint fumes, kerosene fumes, ozone and NO_x from early electric motors, as well as barnyard fumes.

100YL is an example of how not to use science to guide decisions. From non-specifically cited references written by non-scientists to incomplete literature searches to rank chemophobia leading to rampant errors, a scattered dozen of almost accidentally valid conclusions, in my opinion, does not make this book worthwhile.

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Sasquatch: Legend Meets Science by Jeff Meldrum, New York: Tom Doherty Associates, 2006. 297 pp. \$27.96 (hardcover). ISBN-13: 978-0-765-31216-7; ISBN-10: 0-765-31216-6.

Sasquatch: Legend Meets Science, by Professor Jeff Meldrum, is essential reading for mammalogists, wildlife biologists, and other zoologists interested in increasing their awareness of the evidence supporting the existence of the Sasquatch as an extant North American mammal. But all scientists and scientific-minded readers will benefit from Jeff Meldrum's scientific approach to the subject, which has rarely been treated either impartially or scientifically.

During the 1990s, Sasquatch investigators and researchers met in Harrison Hot Springs, British Columbia, for an annual forum sponsored by Stephen Harvey. Scientists were represented for a number of years only by Grover Krantz of Washington State University, Henner Fahrenbach, and myself. Consequently, when anatomist Jeffrey Meldrum first participated in 1996, his contribution was a welcome addition to ongoing attempts to make sense of unexplained aspects of reported Sasquatch anatomy. His participation and col-