The War of 1812 with England resulted in the permanent cutting off of the whiskey supply America procured from the British West Indies. As a result, the domestic liquor industry was born, and by 1814, grain distilleries began to spring up in the cities as well as the country. Distillery owners then began housing cows next to the distilleries and feeding hot slop, the waste product of whiskey making, directly to the animals as it poured off the stills. Thus was born the slop or swill milk system.

Slop is of little value in fattening cattle; it is unnatural food for them, and makes them diseased and emaciated. But when slop was plentifully supplied, cows yielded an abundance of milk. Diseased cows were milked in an unsanitary manner. The individuals doing the milking were often dirty, sick or both. Milk pails and other equipment were usually dirty. Such milk sometimes led to disease. By the last decade of the nineteenth century, a growing number of influential people throughout the country believed that American cities had a milk problem.

Pasteurization, begun around 1900, was a solution of sorts. The other was the certified raw milk movement, which insisted on clean, fresh milk from healthy, grassfed animals. Henry Coit, a medical doctor, was the founder of the first Medical Milk Commission and the certified milk movement. Physicians in cities throughout the country considered raw milk essential in the treatment of their patients; they worked together to certify dairies for the production of clean raw milk. This resulted in the availability of safe raw milk from regulated dairies. Initially, from around 1890 to 1910, the movements for certified raw milk and pasteurization coexisted and in many ways even complemented one another. From about 1910 until the 1940s, an uneasy truce existed. Certified raw milk was available for those who wanted it, while the influence of the pasteurization lobby saw to it that most states and municipalities adopted regulations that required all milk other than certified milk be pasteurized. The end of this truce (detailed below)has led to the subsequent outlawing of all retail sales of raw milk in most states and even of on-farm sales in many.

Many people today find it surprising that support of raw milk among physicians was widespread in the first half of the twentieth century. The use of raw milk as a treatment of chronic disease has a rich and well-documented history. In 1929, J. E. Crewe, MD, one of the founders of the Mayo Foundation, the forerunner of the Mayo Clinic in Rochester, Minnesota, published an article entitled “Raw Milk Cures Many Diseases.” Here are excerpts from Dr. Crewe’s account of his experience with raw milk:

“For fifteen years the writer has employed the certified milk treatment in various diseases and during the past ten he had a small sanitarium devoted principally to this treatment. The results obtained in various types of disease have been so uniformly excellent that one’s conception of disease and its alleviation is necessarily changed.”

During the early days of pasteurization, researchers showed that scurvy often resulted when pasteurized milk replaced raw milk in the diet of infants. “Pasteurized milk gradually induces infantile scurvy, unless antiscorbutic diet is given in addition,” Alfred Hess wrote in the American

Journal of Diseases of Children in 1916. “This disorder quickly yielded to the substitution of raw for pasteurized milk.”

Thus from the earliest days of pasteurization scientists demonstrated that heat treatment had a profound effect on the health-giving properties of milk. A loss of nutrients other than vitamin C was demonstrated in subsequent studies. One article, “The effect of heat on the solubility of the calcium and phosphorus compounds in milk,” was published in 1925 in the Journal of Biological Chemistry. The author’s conclusion was unequivocal: “There is a loss in the soluble calcium and phosphorus contents of the milk due to heat and the amount of the loss depends upon the temperature to which the milk has been heated.”[xi] Other studies showed that pasteurization caused the loss of significant percentages of many of the B vitamins and nearly all of the enzymes in milk.

Further compelling evidence of the superiority of raw milk appeared in The Lancet in 1937, in a report on the work of the medical officer to a group of orphanages. The physician gave pasteurized milk for five years to one group of 750 boys, while giving raw milk to another group of 750. All other conditions were alike except for this one item. During that period, 14 cases of tuberculosis occurred in the boys fed pasteurized milk, while only one occurred in those fed raw milk. The article also discusses the dental health of the children brought up on raw milk: “Dr. Evelyn Sprawson of the London Hospital has recently stated that in certain institutions children who were brought up on raw milk (as opposed to pasteurized milk) had perfect teeth and no decay. The result is so striking and unusual that it will undoubtedly be made the subject of further inquiry.”[xiii] [xiv] Instead, the report has been conveniently forgotten.

Very little research was done after about 1950 on the relative nutrient content of raw versus pasteurized milk. The move toward universal pasteurization was in full swing and interest in raw milk was waning in agricultural colleges increasingly supported by dairy industry and agribusiness funding. One study, however, published in the Journal of Dairy Research in 1967, confirms much of the earlier research. The authors were interested in finding ways to preserve more of the vitamin content of milk during processing and they made a number of interesting comments.

“On leaving the udder, milk quickly takes up oxygen from the air,” they wrote. “During subsequent processing and distribution, this dissolved oxygen promotes oxidative changes that degrade several important nutrients in the milk. Thus, though potentially milk could supply an important fraction of the daily dietary requirement for vitamin C, average market milk supplies relatively little. Similarly with vitamin B12, much of which may be destroyed during heat processing. Fresh milk is also in fact a rich source of a form of folic acid. Like vitamin B12 and ascorbic acid, the folic acid in milk is unstable to heating.” How ironic to see these statements in an industry publication some 50 years after pasteurization had been presented by the milk industry as a purely beneficial process that did not substantially alter the nutritional value of milk.

In the second part of her three-part series “Why Milk Pasteurization” in The Rural New Yorker in 1947, Jean Darlington documented the destruction by pasteurization of a number of other nutrients in raw milk, including:

- The “anti-stiffness” factor in raw cream, described in a 1941 American Journal of Physiology article by Rosland Wulzun.

- The “anti-anemia” factor present in milk from specially fed cows, whose milk was sufficient to prevent anemia in infants, whereas commercially pasteurized milk was insufficient. This was detailed in a bulletin of the Ohio Agricultural Experimental Station.

- “Factor X,” described in a report from the chief of the Bureau of Dairy Industry to the U.S. Secretary of Agriculture in 1942 as an “important unidentified growth-promoting material in milk.”

- The factors responsible for the germicidal property of raw milk, as described in the 1935 textbook Fundamentals of Dairy Science.

The published reports Darlington refers to represent only a fraction of the many scientific studies that demonstrated the superior nutritional value of raw versus pasteurized milk. As she points out, the industry has found nothing that challenges these findings. The US Public Health Service and the medical, veterinary, pharmaceutical and processed food establishments have brushed aside this evidence, admitting only to a small loss of vitamin C from pasteurization. Even this is said to be unimportant because other foods provide vitamin C.

Many researchers have reported on the actual effects of raw versus pasteurized milk in both human beings and animals. A study of the growth of Scottish school children was published in Nutrition Abstracts and Reviews in 1931. [xix] Children drinking raw milk had a significantly greater increase in height and weight compared to those drinking pasteurized milk. “ . . . pasteurized milk was only 66 percent as effective as the raw milk in the case of boys and 91 percent as effective in the case of girls in inducing increases in weight; and 50 percent as effective in boys and 70 percent as effective in girls in bringing about increases in height.” The authors gave the following explanation for the results, referring to another study that had recently appeared in the Journal of Biological Chemistry:

“Kramer, Latzke and Shaw obtained less favorable calcium balances in adults with pasteurized milk than with ‘fresh milk’ and made the further observation that milk from cows kept in the barn for five months gave less favorable calcium balances that did ‘fresh milk’ (herd milk from a college dairy).”

At the end of World War II, 3.7 million of America’s 5.4 million farms had milk cows. Most still sold raw milk directly to neighbors and through local distribution channels, a situation that would change drastically under relentless official pressure for compulsory pasteurization of all milk. A series of articles in popular magazines in 1944, 1945 and 1946 served to frighten the public into

support of these efforts. A side effect of this movement was the demise of America's small farms.

Ladies' Home Journal began the campaign with the article "Undulant Fever," claiming - without any accurate documentation - that tens of thousands of people in the US were suffered from fever and illness because of exposure to raw milk. The next year, Coronet magazine followed up with "Raw Milk Can Kill You," by Robert Harris, MD. The outright lies in this article were then repeated in similar articles that appeared in The Progressive and The Reader's Digest[xxiv] the following year.

The author of the Coronet article represented as fact a town and an epidemic that was entirely fictitious:

"Crossroads, U.S.A., is in one of those states in the Midwest area called the bread basket and milk bowl of America….What happened to Crossroads might happen to your town - to your city - might happen almost anywhere in America." The author then gives a lurid account of a frightful epidemic of undulant fever allegedly caused by raw milk, an epidemic which "spread rapidly…it struck one out of every four persons in Crossroads. Despite the efforts of the two doctors and the State health department, one out of every four patients died."

But there was no Crossroads, and no epidemic! Author Harris admitted this in a subsequent interview with J. Howard Brown of Johns Hopkins University.[xxv] The outbreak was fictitious and represented no actual occurrence. Harris' own public statements both before and after the Coronet article show that not only was the article a complete fiction, but that he knew that such a thing could not possibly happen. In an article he wrote in 1941, Harris stated: "Mortality in acute cases of undulant fever was formerly about two percent, but this has been greatly lowered by modern methods." In a 1946 paper he read before the Maine Veterinary Medical Association in Portland in 1946, he stated, "The small proportion of deaths from acute illness, varying from two to three percent, rarely higher, can be made almost, if not quite zero."

Official statistics of the US Public Health Service, which compiles such information on a nationwide basis, show the possible extent of any undulant fever problems associated with raw milk in the years prior to the Harris article. In the years from 1923 through 1944, there were recorded in the entire United States 32 outbreaks of undulant fever attributed to milk, with 256 cases and a total of three deaths. It is clear that Harris' synthetic epidemic had no counterpart in reality. The claim that "what happened to Crossroads might happen to your town - to your city - might happen almost anywhere in America" was not only completely false but indeed malicious.

These claims and many others like them were repeated in subsequent magazine articles read by tens of millions of people, as well as in countless newspaper articles in the ensuing years. Writing in The Rural New Yorker in 1947, Jean Bullitt Darlington made a particularly fine effort to set the record straight with an article titled "Why Milk Pasteurization? Sowing the Seeds of Fear." Darlington exposes the lies and distortions in the magazine articles referred to above.

Present day claims against raw milk are often more subtle but no less vicious. This is best exemplified in the story of Francis Pottenger.

The impact of quoted work is often influenced by the reputation of the person quoted. But what makes a reputation, in particular that of a person who died many years ago? Certainly in part the accuracy and importance of the written work left behind. But when a person's life and work is ignored by most of society, much less maligned by prestigious segments, reputation suffers. What yardstick may we use then to evaluate the import of the life? We may be left with only our judgment of the work itself. If the work is complex and perhaps not readily available, as is Dr. Pottenger's, making that judgment may be difficult.

Thomas Hotchkiss knew Francis M. Pottenger from the time Thomas was eleven years old in 1912. His "Personal Memoir" of Francis, written after the doctor's death in 1967, is the source for many of the following details about Pottenger's life.

Two years before his death, Francis received the Distinguished Alumnus Award at Otterbein College in Ohio. In presenting the citation, the Chairman of the Board of Trustees praised Francis's distinguished career in medicine and public service.

Service indeed. By the time he received that award, Francis M. Pottenger, MD, had published over fifty peer-reviewed articles in the scientific literature, mainly in the fields of medicine, chronic disease and nutrition. He had served as president of the Los Angeles County Medical Association, the American Therapeutic Society and the American Academy of Applied Nutrition. "Francis was among the first in his profession to recognize the hazard to health caused by air pollution in Los Angeles County," Hotchkiss wrote. "He worked indefatigably over a period of many years to mitigate its deleterious effects upon human health. His efforts were widely recognized and as a result he became a member of the Los Angeles County Air Pollution Control District's Scientific Committee on Air Pollution."

Pottenger received a rather unusual accolade for a medical doctor. In 1951, the Texas State Dental Association honored him with an award for the Advancement of the Science of Dentistry in Texas. He had written a number of brilliant articles on the effect of raw versus cooked foods, including pasteurized milk, on the dental and facial structures of animals and human beings. The articles had a powerful and lasting impact on the many American physicians and dentists who were actively interested in the effect of nutrition on human health and disease.

In 1940, Francis founded the Francis M. Pottenger, Jr. Hospital at Monrovia, California for the treatment of asthma and other nontubercular diseases of the respiratory system. And beginning in 1945, he was Assistant Clinical Professor of Experimental Medicine at the University of Southern California.

Dr. Pottenger also served as a volunteer as Medical Service Chief for the Civil Defense Area surrounding his home during World War II. Japanese invasion of the West Coast of America was considered a real threat in the dark days just after the 1941 attack on Pearl Harbor. The project to set up the first portable hospital in Los Angeles County under simulated disaster conditions was directed by Pottenger.

In 1940 he began what became known as the Pottenger Cat Study, the work that brought him fame. There's no money these days in making famous a man who proves the value of raw foods; in the last forty years or so, Pottenger's fame in the conventional medical and nutritional establishment has faded as surely as the stocks of processed food companies have risen. Yet he remains an icon to those who understand his work and its importance, particularly in relationship to the work of Weston Price. Let's look now at what Pottenger had to say in one of his many professional papers, and an example of how his work has not only been misunderstood, but indeed sometimes deliberately misrepresented.

For many years, advocates for raw milk have pointed to Pottenger's research as perhaps the most important proof of raw milk's benefits. Those who would outlaw all sales of raw milk have meanwhile disparaged and distorted his work. An example of the latter is found in an article titled "Unpasteurized Milk-The Hazards of a Health Fetish" that appeared in the Journal of the American Medical Association (JAMA) on October 19, 1984.[xxxii] The choice of the word fetish is interesting; one meaning of the word is "a thing evoking irrational devotion or respect." Let us see whether Pottenger's respect for unpasteurized milk is indeed irrational.

The JAMA authors refer to a 1946 Pottenger article from the American Journal of Orthodontics and Oral Surgery, "The Effect of Heat-Processed and Metabolized Vitamin D Milk on the Dentofacial Structures of Experimental Animals." [xxxiii] The authors of the "Health Fetish" article state:

"Numerous studies of the relative nutritional merits of raw and pasteurized milk have been conducted in animals and humans, and no differences were detectable. One animal study deserves particular attention because a misrepresentation of the results has become prominent in the raw milk folklore. In 1946, Pottenger published a report about his observations on cats fed varying combinations of raw and heat-treated milk and raw and cooked meat. In his first and largest series of experiments, Pottenger observed many diseases in cats fed raw milk and cooked meat. Raw milk advocates have erroneously cited this article as having reported that disease occurred in cats fed pasteurized milk. Smaller experiments in the same article showed that a diet of one-third raw meat and two-thirds milk (pasteurized or not) did not provide adequate nutrition for the cats."

Based on this quote, one might reasonably think that perhaps the diseases Pottenger observed in the first series of experiments were caused by raw milk, and that the smaller experiments showed that raw milk was not superior nutritionally to pasteurized milk. Publication in so

prestigious a journal by two medical doctors and two veterinarians lends further weight to the pronouncements.

Let us examine what Pottenger actually had to say in his article.

“In the first series of experiments, one group of cats was fed a diet of two-thirds raw meat, one-third raw milk and cod-liver oil. The second group was fed a diet of two-thirds cooked meat, one-third raw milk, and cod-liver oil. Within the ten-year period, approximately nine hundred cats were studied. The amount of data accumulated is large.

“The cats receiving raw meat and raw milk reproduced in homogeneity from one generation to the next. Abortion was uncommon and the mother cats nursed their young in a normal manner. The cats had good resistance to vermin, infections and parasites. They behaved in a predictable manner. Their organic development was complete and functioned normally.

“Cats receiving the cooked-meat scraps reproduced a heterogeneous strain of kittens, each kitten of the litter being different in skeletal pattern. Abortion in these cats was common, running about 25 per cent in the first generation to about 70 per cent in the second generation. Deliveries were in general difficult, many cats dying in labor. Mortality rates of the kittens were high, frequently due to the failure of the mother to lactate. The kittens were often too frail to nurse.”

Based on this quote, one might reasonably conclude that the problems observed were due to differences in the nutrition provided by raw versus cooked meats. We see here how a true statement in the “Health Fetish” article (“Pottenger observed many diseases in cats fed raw milk and cooked meat”) may be placed in a context designed to lead the reader into making false conclusions.

The next half-truth is even more subtle: “Smaller experiments in the same article showed that a diet of one-third raw meat and two-thirds milk (pasteurized or not) did not provide adequate nutrition for the cats”. Further examination of Pottenger’s article is required to understand the subterfuge involved.

Again quoting Pottenger: “We did three other series of feeding experiments. In these series we used the following kinds of milk: raw milk, raw metabolized vitamin D milk, pasteurized milk, evaporated milk, and sweetened condensed milk. Roughly, our results corresponded with those of the previous experiments; animals on raw milk and raw meat reproduced a homogenous strain, the usual causes of natural death being old age or injuries from fighting.

“The male cats fed on [raw] metabolized vitamin D milk (from cattle fed irradiated yeast) and raw meat showed osseous disturbances very like those on pasteurized milk…Young males did not live beyond the second month, and adult males died within ten months….The cats fed pasteurized milk as their principal item of diet, and raw meat as a partial diet, showed lessened

reproductive efficiency in the females, and some skeletal changes, while the kittens presented deficiencies in development….Later, we made a comparative study of several types of milk on white rats, the general results of which coincided with those found in the cats."

We see that Pottenger's own words describe clearly the superior value of raw versus pasteurized milk for the animals. Yet the "Health Fetish" authors statement that "a diet of one-third raw meat and two-thirds milk (pasteurized or not) did not provide adequate nutrition for the cats" is strictly speaking true, because of the use of the phrase "pasteurized or not." One experiment used raw metabolized vitamin D milk, and like the pasteurized, evaporated, and sweetened condensed milks, this resulted in diseased animals. The metabolized vitamin D (a synthetic form of the vitamin present in the milk because the cows had been fed irradiated yeast) proved to be so toxic that it overrode the benefits of the otherwise optimal all-raw diet that were obtained in the animals fed plain raw milk. Thus one type of milk that was not pasteurized had indeed not provided adequate nutrition. Had the "Health Fetish" authors used the phrase "pasteurized or raw," the statement would have been false, because the word raw would be referring to both raw milks tested - the raw metabolized-vitamin-D milk that did not provide adequate nutrition, and the plain raw milk that did. The choice of the word "not" makes the distortion possible without actually making a false statement. Very clever indeed. There is no discussion of the toxicity of the synthetic vitamin D in the "Health Fetish" article, and no mention of the sparkling health seen in generation after generation of cats fed raw meat and raw milk free of synthetic vitamin D.

The "Health Fetish" authors make one other statement that may not be called an untruth, yet is obviously designed to lead one to false conclusions: "Raw milk advocates have erroneously cited this article as having reported that disease occurred in cats fed pasteurized milk." I'll repeat what Pottenger reported: "The cats fed pasteurized milk as their principal item of diet, and raw meat as a partial diet, showed lessened reproductive efficiency in the females, and some skeletal changes, while the kittens presented deficiencies in development." Pottenger indeed does not use the word "disease" here or anywhere else in this article in reference to animals fed pasteurized milk (the article is about effects on the dental and facial structures of the animals). Yet his finding of the superiority of raw versus pasteurized milk is clearly presented. In fact, in one experiment described briefly, 13 cats fed pasteurized milk all died within several months.

The "Health Fetish" authors make no mention of a number of other relevant findings published in the Pottenger article. For example, an autopsy photograph shows the internal organs of a cat that had been fed a diet of one-third raw meat and two-thirds pasteurized milk for eight months before being sacrificed. The caption reads, "Note poor tone of skin and inferior quality of fur. Fair heart. Slight fatty atrophy of the liver. Lack of intestinal tone: moderated distension of uterus. Note the disturbance of the skin with a shift from the creamy color of the raw-milk fed cat to the purplish discoloration of congestion."

In contrast, another photograph shows the internal organs of a cat fed a diet of one-third raw meat and two-thirds raw milk all of its life. The caption reads, “Note excellent condition of fur and creamy yellow subcutaneous tissue with high vascularity. Moderate heart size. Good liver, firm intestines, and resting uterus. Note the muscle of the raw-milk-fed animal has a deeper red color and appears more vascular that that of the animals receiving the heat-processed milks.”

Another experiment began with 13 cats in excellent health that had been raised on raw meat and raw milk. A table is used to show how long these cats lived after being placed on a diet of one-third raw meat and two-thirds pasteurized milk. The average length of life for the males is 4 months 11 days, for the females 3 months 27 days. The calcium to phosphorous ratio of each cat’s femur (thighbone) is shown, and all are abnormal.

Two X-ray photographs depict the results of another experiment that used two rats, one fed raw milk (rat A) and the other pasteurized (rat B). The caption for the raw-milk animal reads, “Note advanced maturity, greater diameter and length of the olecranon process [part of the elbow] of the ulna [the long bone in the foreleg].” The caption for the pasteurized milk animal reads, “Note smaller olecranon process and delayed maturity when compared with rat A.”

Another photograph shows a number of bones from one of the cats, previously healthy, that died four months after being placed on the one-third-raw-meat and two-thirds-pasteurized-milk diet. The caption reads, “Note missing teeth, chalky appearance of bone, squaring of the bases of teeth and marked root resorption. Osteoporosis. Lack of completion of orbital arches [the orbit is the eye socket]. Malar bones [the cheek bones] have become separated at suture lines [where the bones come together].”

An X-ray of the jaw of a living cat fed the raw-meat/raw-milk diet all of its life is presented. The caption reads, “Normal jaw structure, good distribution of trabeculae [part of the bony structure], well developed condyle [a knob at the end of the bone], and well developed pterygoid process [a little outgrowth of bone] of the mandible [jaw bone]. Alveolar crest [the alveolus is the bony socket for the root of a tooth] of normal height; even distribution of teeth.”

Pottenger concludes his article with possible explanations for his findings, referencing his words to physiology textbooks and articles by other scientists: “What vital elements were destroyed in the heat processing of the foods fed the cats? The precise factors are not known. Ordinary cooking precipitates proteins, rendering them less easily digested. All tissue enzymes are heat labile and would be materially reduced or destroyed. Vitamin C and some members of the B complex are injured by the process of cooking. Minerals are rendered less soluble by altering their physiochemical state. It is possible that the alteration of the physicochemical state of the foods may be all that is necessary to render them imperfect foods for the maintenance of health. It is our impression that the denaturing of proteins by heat is one factor responsible. The principles of growth and development are easily altered by heat and oxidation, which kill living cells at every stage of the life process, from the soil through the plant, and through the animal.”

Dr. Pottenger's work leaves us with clear indications that there is no better food than raw milk from grass-fed animals. The clear and present danger is that "experts" such as the health fetish article authors wield unjustified influence with physicians and public health authorities – influence based largely on false representations. Understanding the truth about Pottenger's work and the value of raw milk is an important step in regaining our health.

Raw milk sales had been outlawed or severely restricted in virtually every state, and the total number of farms has shrunk to less than 2 million; less than 100,000 have milk cows. Most of those cows spend most of their time in confinement facilities. According to the textbook Dairy Cattle Science, "Nearly 40 percent of all dairy cows have some form of mastitis." (Mastitis is inflammation of the mammary glands; these are not healthy cows.)

The story of what's happened to quality milk is same as the story of what's happened to America's farmers. Both have been mostly eliminated, marginalized by a culture that has allowed corporations to promote the big lie that the processing of natural foods has nothing to do with the epidemic of disease that cripples our society. Corporate spokespersons for the food, drug and medical industries have used billions of dollars – a drop in the bucket compared to their profits – to convince most of us that this rape has been carried out for our own good. "Food safety," cry the corporations and their media and government lackeys. Farmers who would sell fresh raw milk and meat raised and slaughtered on the farm would endanger the public. Meanwhile, as Eric Schlosser has so elegantly written of the nation's commercial food supply in Fast Food Nation, "There's shit in the meat." The Center for Disease control estimates that over a quarter of all Americans come down with food poisoning each year.