

## CHAPTER 1



# Depression Dieting and the Vitamin Gold Rush

The signs of deprivation all around them—the breadlines, the people rummaging through garbage cans and selling apples on the streets, the hobos at the back door asking politely for a bite to eat, the heartrending stories from Appalachia—hardly altered most Americans' deep-rooted attitudes toward food. These continued to reflect the economy of agricultural abundance that had shaped them. Yes, there had been depression before, both agricultural and industrial, and there had been hardship and even hunger, particularly on the agricultural frontiers and in the swollen slums of the expanding cities. But working-class America was still very much a land of immigrants and their offspring—people to whom America still represented an unparalleled abundance and variety of food. Few could think of it as a land of hunger and want, particularly in the light of family memories of life in the “old country.” As for the middle classes, for almost fifty years they had been bombarded with warnings against the perils of overindulging in this abundance. Since the 1880s the scientists, home economists, cookery writers, advertisers, and faddists to whom they turned for dietary wisdom had been propagating the ideas of the New Nutrition. These taught that all foods could be broken down into proteins, carbohydrates, and fats, and that one should eat only as much of each of them as the body required. The idea that the body's energy needs could be measured in calories took hold, along with the notion that one would gain weight if one ingested more of these than the body burned. Ideals of feminine beauty changed markedly, as the heavily corseted matronly ideal of the late nineteenth century gave way first to the more lithe and athletic prewar Gibson Girl and then, in the early 1920s, to the positively skinny “flapper.” It was not just females who were affected. Excess male girth came to denote sloth, immobility, and ill health rather than substantive achievement. “A whole new anti-avoidupois philosophy has grown up,” wrote one observer in 1931, “until the stoutish individual who used to be considered a peculiarly good-natured fellow has come to be looked upon merely as lacking self-control.”<sup>1</sup> “Even the middle-aged can remember the time when a slight excess of avoidupois was re-

garded as a sign of an amiable, easy-going nature, rather than an error of judgement," she said elsewhere.<sup>2</sup>

Yet it is often said that corpulence tends to be regarded as attractive in cultures of economic scarcity.<sup>3</sup> One social scientist even correlated the ups and downs of ideal female body shapes in early modern European painting with times of feast and famine.<sup>4</sup> One might therefore expect the Depression to have brought a shift toward significantly heftier ideals than those of the 1920s. Indeed, some women's fashion designers bet on this and in 1931 proclaimed a return to the nineteenth-century ideal of plumpness and plumes. Yet despite (or because of?) support from the Bureau of Home Economics of the U.S. Department of Agriculture, which hoped it might persuade women to start chomping their way through the wheat surplus, the new style flopped.<sup>5</sup> While the Depression never saw the reemergence of the pencil-thin extremes of the flapper style, for the most part ideal body types did not diverge much from those of 1929, by which time dress lengths had been lowered and some curves were being admired. During the next decade, shoulders (male and female) assumed more padding and curves became somewhat more pronounced, but slimness remained the ideal, particularly among women. College girls "determined to become fashionably thin overnight" went from one crash diet to another, wrote a concerned dietitian.<sup>6</sup> Males might want to be thinner but seemed to do little about it. "Perhaps the most dangerous fad just now is limited almost entirely to women—that of dieting to get or keep thin," said a physician in 1933. "The practice of medicine would be made much easier if I could persuade my male patients to diet more and my female patients to diet less."<sup>7</sup> Two years later, in a book called *Diet and Die*, Carl Malmberg warned that the "craze for slimness" was leading many people who were not "made to be slim" to follow dangerous diets. "It is better to be fat than dead," he wrote, but it was clear that many women would disagree.<sup>8</sup>

Why the continuing struggle for slimness? It was not simply that the upper and middle classes (that is, the classes who could afford to be fashionable) were relatively unaffected by Depression deprivation. It was also that the slim ideal was becoming rooted in more than mere fashion—it was based on health concerns as well. Nutrition experts, reinforced by studies of mortality by insurance companies, were now warning that excess weight, particularly among the middle-aged, led to early death.<sup>9</sup> Other scientists buttressed the pressure to lose weight by shifting responsibility for obesity directly onto the eater. Whereas many of the previous decade's experts had been willing to ascribe excess weight to malfunctioning thyroid glands or lazy metabolisms, in the 1930s there was a decisive shift toward blaming it all on consuming too many calories. "The weight is made up of tangible material," wrote Dr. Frank Evans, one of the era's main proponents of reducing, "and there is no gland with an aperture through which it can be introduced." The only opening capable of doing this was the mouth, and it was around what went into it that scientific and public attention now centered.<sup>10</sup>

The result was paradoxical: In the midst of the greatest economic crisis the nation had ever seen, its middle and upper classes—particularly the female members—continued to regard eating less and losing weight as an elusive goal, rather than a tragedy. Indeed, no sooner did the Depression strike than a wave of reducing diets swept the middle class. One of the most popular was that touted by Dr. William Hay, who had created dishes such as “Fountain of Youth Salad” for patrons of his sanitarium, Pocono Hay-Ven, in Pennsylvania and elaborated his philosophy in his book *How to Always Be Well*. The Hay Diet’s central feature was one that would go in and out of fashion over the next half-century: It prohibited eating proteins and carbohydrates at the same time. A third type of food, “alkalines” (mainly fruits and vegetables), was also to be consumed separately. As an added fillip, it called for taking a large enema or strong cathartic every day.<sup>11</sup> A major competitor, the Hollywood Eighteen-day Diet, was promoted by California citrus fruit interests. Its followers could live on fewer than six hundred calories a day by limiting each meal to half a grapefruit, melba toast, coffee without cream or sugar, and, at lunch and dinner, some raw vegetables. Then there were the two-food diets: the pineapple and lamb chop diet, the baked potato and buttermilk diet, the “Mayo diet” of raw tomatoes and hard-boiled eggs. There was even a coffee and doughnuts diet. The United Fruit Company helped popularize a reducing diet built around bananas and skim milk developed by Dr. George Harrop of Johns Hopkins University.<sup>12</sup> Although the good doctor was reluctant to exploit it for commercial gain, at the end of 1934 it was declared to be by far the most popular diet of the year, easily outdistancing its nearest rival, the grapefruit juice diet.<sup>13</sup> Even processors of relatively high-calorie foods managed to scamper aboard the reducing bandwagon. Advertisements for Wonder Bread featured professional models in bathing suits telling how, because it was “slo-baked,” it gave them the quick infusions of energy that allowed them to “diet with a smile.”<sup>14</sup> “Betty Crocker,” General Mills’ invented spokesperson, took a similar tack. She called bread “the outstanding energy food” and used her popular radio show to denounce the canard that it was “fattening.”<sup>15</sup> Manufacturers of fruit juices and even candies claimed that their products yielded “quick energy” yet were “never fattening.”<sup>16</sup> Welch’s grape juice was even more effective, so it seemed: Its “predigested grape sugar” actually “burned up ugly fat.”<sup>17</sup>

Radio supplemented the printed word. One program on reducing elicited thirty-five thousand letters. Victor Lindlahr, whose dieting book sold over half a million copies, held radio “reducing parties.”<sup>18</sup> Local radio was a particular favorite of the hucksters promoting thyroid products, laxative salts, cathartic drugs, the drug dinitrophenol—which increased the metabolic rate—and other supposed aids to quick weight loss. Because local shows were hardly ever recorded, they were practically impervious to censorship for false claims.<sup>19</sup> Fortunately for consumers, the promoters of the phenomenally successful Helen’s Liquid Reducer Compound promised to “Gargle Your Fat Away” in the print media. The company could therefore be forced

out of business when Food and Drug Administration investigators discovered that the gargle contained hydrogen peroxide, a disinfectant, and bleach. The handsome and charming lecturer Gayelord Hauser—who capitalized on screen star Greta Garbo's devotion to his diet of mushroom burgers, broiled grapefruit, and his own brands of cathartic salts—was more difficult to nab. He continued to dine out, as it were, on his laxative diet until the 1960s, becoming a favorite of the Duchess of Windsor and other high-society figures.<sup>20</sup>

But food companies and hucksters were by no means alone in promoting reducing for health and beauty. So did some of the most respected medical and public health authorities. In a bizarre episode in April 1934, while breadlines still snaked around street corners not far from the Loop and people scoured the city's garbage dumps for food scraps, Chicago's municipal health commissioner, Dr. Herman Bundesen, announced that three lucky girls had been selected to participate in a scientifically supervised weight-losing "derby." For one month they were put on a particularly grim version of the bananas and skim milk diet. At the end of the month, when they had collectively lost a total of thirty-two pounds, the proud doctor told the public to "remember that every pound lost is health gained, beauty added. Dieting to reduce is dieting for health."<sup>21</sup>

In emphasizing the importance of dieting for health, the commissioner was reflecting one aspect of the tidal change that had swept middle-class American attitudes toward food in the previous decades: the conviction that you should eat what is good for you, not what you like. "Taste and habit, long the sole arbiters of the dining table, seem overthrown," wrote one observer in 1930. "Man, and perhaps more particularly woman, of the 1930 genus no longer eats what he likes in nonchalant abandon, fancy free. He eats what he thinks is good for him, on some scientific or pseudo-scientific hypothesis."<sup>22</sup> "The willingness to eat not for pleasure but for health is doubtless due to a fundamental U.S. trait: the fear of being sickly," said *Fortune* magazine in 1936. "Perhaps in England, but certainly not in France or Spain or Germany or Russia will you find people so anxious to believe that by eating in a certain way they can achieve the life buoyant and vigorous. Here it is the gourmet who is a curiosity, the dietitian who is a prophet."<sup>23</sup>

One of the more bizarre manifestations of this was that one of the nation's main concerns as it entered the Depression decade seemed to be something called "acidosis." It was supposedly caused by eating improper combinations of foods—mainly unbalanced proportions of proteins and carbohydrates—which caused the acids to overwhelm the alkalines in the stomach. This sapped its victims' vitality and made them susceptible to a number of awful afflictions, including excess weight.<sup>24</sup> Much of the credit for originating the acidosis scare seems to lie with Alfred W. McCann, a New York pure food crusader and unabashed quack. Since the mid-1920s he had been warning—in newspaper columns, books, and long-winded exhortations on his popular radio show—that it led to "kidneycide" and heart

failure. By 1931, when the fifty-two-year-old McCann collapsed and died from a heart attack after an hour-long radio harangue, fear of acidosis had spread into the mainstream.<sup>25</sup> "Where once we prated about calories and vitamins, we are now concerned with an alkaline balance," said a bemused correspondent for the *New York Times* in May 1930.<sup>26</sup> When Kenneth Roberts surveyed the raft of diet books swamping the Library of Congress in 1932, he found that the most recent ones, mainly written by doctors, believed "nearly every disease in the world to be not only the result of eating improper foods, but also the result of eating proper foods in improper combinations. . . . If a person is so ignorant as to permit fermentable foods to pass his lips he is doomed. . . . They give him acidosis and what acidosis will do to him, in a quiet way, almost passes belief."<sup>27</sup>

Among the experts sounding the alarms about acidosis was America's best-known nutrition researcher, Professor Elmer McCollum of Johns Hopkins, whose famous experiments with vitamin-deprived rats and popular column in *McCall's* magazine had helped make him one of the culture heroes of the twenties. Food producers, with whom McCollum worked closely, quickly picked up the acidosis beat. The California Fruit Growers' Exchange's claim that its Sunkist brand citrus fruits, although apparently acidic, had a beneficial alkaline effect in the stomach received the endorsement of the federal Bureau of Home Economics. Welch's grape juice promised to "correct" acidosis while also fighting fat.<sup>28</sup> However, laboratory experiments soon began to undermine the acidosis scaremongers.<sup>29</sup> In May 1933 nutrition experts advised that "true acidosis is much less frequent than is commonly believed."<sup>30</sup> By 1935 McCollum was distancing himself from the acidosis scare, criticizing the Hays-type "compatible eating" diets, which claimed to combat acidosis, as baseless.<sup>31</sup>

By then, however, new discoveries in vitamin research were thrusting those tantalizing little things back into the limelight. Apparently crucial in maintaining vision, vitality, and even life itself, these tasteless and invisible items had gradually come to world attention from 1911 to 1921, and they proved to be a boon for food advertisers in the 1920s. Because so little was known about what they did and how much of them was needed for good health (there were no standardized methods for measuring them), they provided immense scope for exaggerated health claims. Thanks to food advertising and home economics in the schools, vitamin-consciousness was widespread by the end of the 1920s. In the early 1920s there had been much concern over deficiencies in calcium and vitamin A. Experts had therefore recommended drinking enormous quantities of milk and stuffing oneself with green vegetables. By the late 1920s the importance of vitamin C had been discovered and duly exaggerated. In the early 1930s vitamin G underwent the same process.<sup>32</sup>

New claims were also made for the longer-known vitamins. Although the only major affliction known to result from a deficiency in vitamin B was beri-beri—a polished-rice eaters' ailment practically unknown east of Pago-Pago—Standard Brands spent enormous sums trying to get consumers to

rely on its Fleischmann's brand of compressed yeast cakes as a source of this vitamin. In the mid-1930s it was claiming that eating three of the soft, slimy cakes a day would clear up pimples, boils, and acne, increase energy levels, and cure poor digestion, "fallen stomach," "underfed blood," and constipation.<sup>33</sup> (Only the last claim contained more than a shred of truth, for it did have a pronounced laxative effect.) Quaker Oats ploughed the same furrow, claiming to provide "the precious yeast-vitamin (B)" much more economically than yeast cakes.<sup>34</sup>

That advertisers would trumpet their foods' vitamin B content so loudly is no surprise, for scientists were making some truly extraordinary claims on its behalf. One group reported that it increased "brain power." In April 1937 two Boston physicians reported that it had effected "a rapid and spectacular cure" of heart disease in 120 of their patients.<sup>35</sup> Two days later these claims were rivaled by a renewed push for vitamin G (later recognized as part of the vitamin B complex and renamed vitamin B<sub>2</sub>, riboflavin.) Dr. Agnes Fay Morgan of the University of California announced that the black hair of rats deprived of this vitamin turned gray. Then, when they were fed it again, their hair turned black!<sup>36</sup> This was exactly the kind of discovery the chemist Henry C. Sherman, one of the nation's leading nutritionists, was awaiting. For some years he had been arguing that a "well-rounded diet" could lengthen a person's life by at least seven years. The Fountain of Youth, he had said, lay not in Ponce de León's mythical land of eternal spring but "in every man's kitchen." Milk, eggs, fruits, and vegetables were more than "protective foods"; they would extend the normal life span.<sup>37</sup> He now rushed to his lab and deprived his rats of vitamin G. Lo and behold, he soon announced, early in their lives they took on the characteristics of little old people. "In fact," he said, "they look older than any man I ever saw." Yet when vitamin G was restored to their diet "they became regular Beau Brummels." Now, he announced, if liver and kidneys, high in vitamin G, were added to the list of foods he had earlier recommended, "early onset of senility" could definitely be headed off.<sup>38</sup>

But advocates of other vitamins battled for center stage. Vitamin C's effects were not clear for some years after its discovery, providing ample scope for claims of all kinds. In 1934 the California Fruit Growers' Exchange, citing a University of Chicago doctor who said that Sunkist orange and lemon juice had drastically reduced children's tooth and gum problems, advertised it as fighting "gum troubles" and tooth decay.<sup>39</sup> At the American Dental Association convention at the end of that year, fifteen hundred dentists, doctors, and nutritionists debated whether it was more effective than the toothbrush in combating tooth decay.<sup>40</sup> Some researchers said it cured stomach ulcers; others suspected that a deficiency of it turned people into alcoholics.<sup>41</sup> As for vitamin D, it was hailed as an anticoagulant that could save "bleeders" from certain death and was also credited with combating lead poisoning.<sup>42</sup>

As vitamin-mania increased in intensity, it became apparent that it might be a mixed blessing for large food processors. Yes, it provided tempting

opportunities for outrageous health claims, but the main thrust of vitamin research was on deprivation: Rats (and presumably people) deprived of certain vitamins went blind, lost their vitality, teeth, and hair, developed scurvy, pellagra, beri-beri, and so on. Processors might encourage people to eat their products to head off these horrific consequences, but there were still disturbing indications that modern food processing, particularly milling and canning, itself robbed foods of vitamins. The large processors tried to reassure the public in a number of ways. The millers enlisted organized medicine, securing an official endorsement of white bread from the American Medical Association, which declared it “a wholesome, nutritious food [with] a rightful place in the normal diet of the normal individual” and called aspersions on it “without scientific foundation.” Then, in 1930, they elicited support from the U.S. Public Health Service for a U.S. Department of Agriculture statement praising both white and whole wheat bread as “economical sources of energy and protein in any diet.”<sup>43</sup> A battery of nutrition experts were brought on board. McCollum, who in 1928 had warned that white flour had been deprived of most of its vitamin content, was hired by General Mills in 1930 to encourage its consumption. So was Lafayette Mendel, the renowned vitamin expert from Yale. In 1934 the two famous scientists appeared with a galaxy of Hollywood stars on a Betty Crocker radio special to assure the public that white bread was a healthful diet food.<sup>44</sup> The next year McCollum wrote a well-publicized letter to Congress denouncing “the pernicious teachings of food faddists who have sought to make people afraid of white-flour bread.” He also provided the canning industry with a useful statement assuring the public that nutritional research supported “the high favor of canned goods among consumers.”<sup>45</sup> In 1938 the grateful Grocery Manufacturers Association presented him with an award for his contributions to knowledge of food.<sup>46</sup>

The professional home economists, who controlled nutrition education in schools and colleges, were also more or less co-opted by the food processors. Ruth Atwater, the daughter of Wilbur O. Atwater, the revered founder of human nutrition research in America, had taught home economics at Pratt, Skidmore, and the University of Chicago before she was hired in 1927 by the National Association of Cannerymen to promote their products. Her sister, Helen, was editor of the *Journal of Home Economics* and saw nothing untoward about publishing Ruth’s assurances that “research has shown conclusively that commercially canned foods have the same food value as similar foods prepared in home kitchens, with the possibility of added energy value due to the presence of sugar syrups in many canned fruits and a few canned vegetables.”<sup>47</sup> But then, no one seems to have thought twice about the food processors having become an indispensable source of funding for the American Home Economics Association, publisher of the journal.<sup>48</sup> Since they also provided an increasing number of jobs for home economists—who developed recipes and instructional materials using their products for home economists in the schools—there was never a shortage of professional “dietitians” (a rubric used increasingly by home economists

who specialized in food) to provide similar testimonials to canning and other forms of processing.<sup>49</sup> Dr. Walter P. Eddy, a nutrition expert at Columbia Teachers College, a leading center of home economics research, reported that people could rely on all of the forty-nine kinds of canned foods he tested to provide more than adequate supplies of vitamins A, B, C, and G. After all, his rats had “thrived” on them for a whole year.<sup>50</sup>

The mass media, especially the women’s magazines, which profited mightily from food ads, also helped still public concern.<sup>51</sup> Dr. Eddy wrote a regular column for *Good Housekeeping* magazine, which assured readers that advertised items such as Jell-O were excellent and inexpensive sources of nutrients.<sup>52</sup> In 1934 the *Ladies’ Home Journal* ran an article on canning that told readers, “Here’s food so meticulously prepared that no suspicion of loss of nutriment or purity or wholesomeness can be laid to it.” Only the exceptionally beady-eyed would have noticed that it was actually a paid advertisement of the National Association of Cannerymen set up by the *Journal* exactly like one of its own articles.<sup>53</sup> Earlier, an article that amounted to an ode to large food manufacturers had informed readers that any of their advertising making claims for vitamins was submitted to “cool scientific men” who told the copy writers, “Thus far may you go and no farther.”<sup>54</sup> Continental Can’s cool scientific men seem to have allowed their copy writers considerable latitude, however. They assured consumers that canned fruits and vegetables were cooked in sealed cans “to retain the vitamins.”<sup>55</sup>

All of this helps explain one of the great mysteries of the 1930s. To wit: Here was a nation swept by anti-Big Business sentiment. Giant corporations and banks were commonly accused of having brought on the economic collapse, and the reputation of American businessmen sank to an all-time low. It was certainly a propitious time to attack what these villains seemed to be doing to that most precious part of the American heritage—its supply of good, wholesome food. Yet those who warned of the pernicious effects of Big Business on American food achieved remarkably little.

It was not that voices were not raised. To decry the processing of foods and proclaim the superiority of the “natural” represents an age-old current in America. The 1930s were no exception. Indeed, two such assaults—Arthur Kallett and Frederick J. Schlink’s 1933 book *100,000,000 Guinea Pigs* and Schlink’s *Eat, Drink, and Be Wary* in 1935—were by far the most effective denunciations of processors since Upton Sinclair’s 1905 exposé of meat packers, *The Jungle*. The two engineers had helped found Consumers Research, Inc., which Kallett directed, and had close connections with Stuart Chase, Robert Lynd, and other leaders in the consumer movement. Their books, articles, and new product reports helped stimulate a miniwave of “guinea pig journalism.”<sup>56</sup> But their emphasis was on dangerous additives to food, not nutrient deprivation. “Poison for Profit,” the title of one of their articles in the *Nation* magazine, neatly summarizes their thrust.<sup>57</sup> They saw themselves as continuing the crusade against dangerous drugs and food additives, begun by the revered, recently deceased chemist Dr. Harvey Wiley,



which resulted in the Pure Food and Drugs Act in 1906. Convinced that new developments in science and business had left that act behind, they denounced the spraying of fruits with arsenic trioxide and lead arsenate, the “sulphuring” of dried fruits, and the surreptitious use of sodium sulphite to keep meats looking fresh, as well as Wiley’s *bête noire*, the use of sodium benzoate as a preservative. They warned that white bread was made with yeast fed with a chemical—potassium bromate—whose effects on humans were unknown, and they condemned white flour, not because it had been deprived of the nutrients of the whole wheat germ but because “poisonous” chemicals were used to bleach it.<sup>58</sup> (They did not attack millers for removing the roughage in the bran of the whole grain, for one of Schlink’s more peculiar hobbyhorses was that bran was bad for you.) Yet by mid-decade their warnings seemed only to have spurred sales of additive-free and pesticide-free foods in health food stores.<sup>59</sup>

The large canners themselves had inadvertently contributed to the beginning of the campaign. In 1930, concerned by competition from small, low-cost canners who packed cheaper fruits and vegetables, they had their friends in Congress amend the Food and Drug Act to require canned foods that did not meet certain standards to be labeled “Below U.S. Standard, Low Quality but Not Illegal”—a tag hardly calculated to set shoppers reaching for the product.<sup>60</sup> But the big canners turned out to be a little too cute for their own good, for this so-called Canners’ Bill drew attention to the fact that nothing on their own labels gave the consumer even a hint of the quality of what lay inside the opaque tin. Calls for labeling canned goods as A, B, and C in quality—or some other system—inevitably arose. When Assistant Secretary of Agriculture Rexford Tugwell, a Columbia professor who had served on President Franklin D. Roosevelt’s “Brain Trust,” turned his attention to updating the Food and Drug Act, this was among his proposals. But the major canners now realized that grade labeling would undermine their main advantage over the small fry: their large advertising budgets, and the confidence these created in their brand names. If the government guaranteed that the quality of the contents of two different cans was equal, why should consumers pay more for the brand-name product?<sup>61</sup>

Tugwell, a brilliant man who took few pains to mask his disdain for his intellectual inferiors, was already one of the most unpopular figures in the administration. He was now duly reviled as “Rex the Red” by the food industry and charged with aiming to communize food processing. He soon left the bill in the hands of its less abrasive sponsor in the Senate, Royal Copeland, a mild-mannered homeopathic physician from New York. Like the consumer leaders, Copeland was particularly concerned with protecting the public from “poisons” masquerading as healthful additives, and he rewrote the bill to place greater emphasis on this. Yet Schlink, Kallett, and their left-wing associates at Consumers Research opposed the bill as wishy-washy and ineffective. On the other hand, despite President Roosevelt’s personal assurances that the bill was aimed only at “a small minority of chiselers and evaders,” the large food companies joined the United Medi-

cine Manufacturers of America in organizing a powerful lobby against it.<sup>62</sup> Among the provisions they found most objectionable was a proposal that false and misleading advertising be penalized (the 1906 act banned only false labeling), something that would jeopardize their extravagant health and nutrition claims.<sup>63</sup>

In the political context of the time, business opposition was not, in itself, enough to doom the legislation. But the bill's supporters could never point to much organized concern about the quality of the food supply. True, a number of middle-class women's organizations supported it, as did the American Home Economics Association, the American Dietetic Association, and the American Nurses Association—all somewhat radicalized by the Depression.<sup>64</sup> But conspicuously absent from the list was the powerful American Medical Association, which probably swung more weight in Congress than all the others combined. Indeed, the AMA helped undermine the case for government regulation of food claims with a system whereby advertisers voluntarily submitted their copy to an AMA committee for "acceptance." This merely meant certification that the product contained what it said it contained, provided on the basis of chemical analyses submitted by the companies themselves. For most products the hurdle was hardly a high one. A typical favorable report was "*Product*: Heinz Pure (Virgin) Olive Oil (Imported). *Description*: Imported first cold pressed (Virgin) Spanish olive oil." It was this system that allowed General Mills to claim AMA endorsement for Gold Medal white flour.<sup>65</sup>

But most important in damaging the bill's prospects were the media—particularly the mass circulation magazines, which bombarded it with calumny. Their outrage was directly linked to their balance sheets, for by the mid-1930s the food industries had become their largest advertisers.<sup>66</sup> The editors of Hearst-owned *Good Housekeeping* magazine—for whom Dr. Wiley had served as a columnist—discovered what was afoot in late 1933, after having been carried away by Wiley's widow's emotional appeal that they support the bill in his memory. Within weeks they were ordered to reverse themselves and publish a condemnation of the bill written by a New York City advertising man.<sup>67</sup> The *Ladies' Home Journal* was forced into an equally embarrassing comedown. Its editors—recalling the *Journal's* leading role in agitating for the 1906 law—had also rashly supported the Tugwell bill, only to be forced by the publisher into a humiliating reversal. As if to atone for the initial faux pas, the head of the *Journal's* parent company, Curtis Publications, testified to Congress on the bill's evils.<sup>68</sup>

The struggle over the bill lasted for more than five years, exhausting Copeland, who died shortly after its passage, and giving consumer advocates a chastening view of the difficulties involved in taking on entrenched interests. Thanks to their attacks on the Hearst magazines, they had even drawn the ire of the newly created House Un-American Activities Committee, which set about trying to prove that they were a Communist "front."<sup>69</sup> By the time the bill passed, many doubted that it had been worth the effort, for by then most of its teeth had been pulled.<sup>70</sup> The bowdlerized ver-

sion finally became law after a wave of public outrage greeted the punishment—the only one available under the old rules—meted out to a Tennessee druggist who produced a patent medicine that killed seventy-three people in seven states: a two-hundred-dollar fine for mislabeling the product.<sup>71</sup>

The legislative battle, with its emphasis on poisonous products and additives, had attracted most of the consumer movement's attention. Nevertheless, an undercurrent of popular suspicion that processing made foods less nutritious had persisted, spurring a search for ways to reinsert vitamins and minerals into foods. A major breakthrough had come in 1928, when chemists at the University of Wisconsin were able to irradiate canned and pasteurized milk with vitamin D—ironically, a nutrient it had never contained. Pet Milk led the way in irradiating its canned milk and was soon followed by much of the rest of the industry, providing a bonanza in royalties for the university's research foundation. With financing from the state's powerful dairy interests, the university chemists soon simplified the method and developed ways of irradiating cheese and other food products.<sup>72</sup> Other food companies subsidized further research, hoping to discover new nutritious qualities in their products or how to vitalize them.<sup>73</sup>

The process was echoed throughout the nation's research establishments, as Depression-battered university scientists and threadbare government agricultural experiment stations turned to food processors for funding. In 1933, when the famed New York state agricultural experiment station at Geneva was reduced to desperate straits—with a budget that allowed a mere three hundred dollars a year for equipment and chemicals—the Birds Eye subsidiary of General Foods stepped in with three thousand dollars a year to subsidize research into how to preserve the vitamin content of frozen foods. Then the fruit juice processors, corn syrup manufacturers, and even wine producers joined in, funding studies of how vitamins fared in the processing of their products. The experiment station used some of the new money to fund graduate research by its scientists at nearby Cornell University, helping to establish a mutually beneficial relationship between Cornell scientists and the packers and processors.<sup>74</sup> By the end of the decade the industry had come up with the funding necessary to create a School of Nutrition.<sup>75</sup> By then the powerful Grocery Manufacturers Association had pledged \$250,000 a year to underwrite a well-endowed industry-supported nutrition research foundation.<sup>76</sup>

For most processors, the payoff from vitamin research would be some time in coming. In 1935 scientists began to come up with commercial methods for synthesizing vitamins, but food processors hesitated to use them. Even health food producers were slow on the uptake, for their businesses revolved around their own special foods. The industry leader, the Battle Creek Food Company, subsisted mainly on ersatz foods such as "psylla seed" and "Feroclyst," an "iron preparation with copper and chlorophyll."<sup>77</sup> One of the most popular lines of health foods in California (even then a mecca for food faddists) was a range of dehydrated foods produced

in capsule form by Anabolic Food Products of Glendale. Available only through doctors, the capsules of brown powder were said to contain all of the nutrients in lettuce, endive, Cape Cod cranberries, Irish kelp (a popular cure-all of the 1920s), or whichever other of the forty-three available vegetables the doctor prescribed.<sup>78</sup>

But once a number of vitamins were available in pill or liquid form, their attraction was soon manifest. Trend-setting southern California led the way in what one observer called "the quick change-over from counting calories to supplementing the diet with vitamins and minerals in capsules," behavior he thought "came from the same wellspring as the cults of its religion."<sup>79</sup> Chemical producers scrambled to churn out vitamins for the retail trade. Drugstore trade associations stole a march on other retailers by having a number of state legislatures declare vitamins to be drugs, thereby restricting their sale to pharmacies and keeping prices high. In 1938 over a hundred million dollars' worth of the rather expensive new pills was sold by druggists—making them second only to laxatives in drugstore sales—more than a quarter of them on prescription.<sup>80</sup> (Common sense showed that "those individuals who can afford a dollar a week for vitamin pills don't need them," said a New York hospital director, "and those who might be benefited can't afford them.")<sup>81</sup> In 1939 the large grocery chains, led by Kroger's and IGA, counterattacked, challenging the druggists and the state laws by stocking thousands of their stores with vitamin pills and potions.<sup>82</sup> The new Food and Drug Act backed them up by declaring that, if they were not prescribed for illness or sold with health claims attached, vitamins should be considered foods, not drugs. When giant Lever Brothers began to manufacture vitamins and wholesale them through its grocery distribution network, the *Journal of the American Medical Association* commented that the "vitamin gold rush of 1941" made that of 1849 pale by comparison.<sup>83</sup>

But Lever was selling vitaminized pills, not foods. Indeed, as an industry observer noted, food processors had "failed to cash in adequately on the [vitamin] trend."<sup>84</sup> Their most visible response was a major campaign by Kellogg urging shoppers, "Get your vitamins in food—it's the thrifter way."<sup>85</sup> Only slowly did it dawn on the processors that the best defense might be a kind of co-option: putting nutrients into their foods. This tardiness in awakening to the possibilities of nutrification is quite understandable. After all, it meant acknowledging that their critics had been right and their advertising wrong, that processing often did deprive foods of nutrients. But scientific advances were making it impossible to maintain the old stance: Methods had been developed for measuring most vitamins in standard "units." The amounts of vitamins lost in processing could now be calculated, as could the nutritional content of liquids or powders added to restore what had been lost. Consumers could no longer be fooled, the vitamin manufacturer Hoffmann-La Roche warned food processors in 1939. The American housewife now knew that vitamins B<sub>1</sub> and C, for example, were essential for growth, "nerve stability," teeth, and gums. She would "insist on specific declarations" in "units," and she would "know herself whether the amounts

named are a meaningless gesture or worth while." She knew that these vitamins "may be destroyed or lost in modern processing and cooking, that they can now be restored."<sup>86</sup> The Scott and Browne Vitamin Corporation also sounded the jig-is-up theme. Consumers now knew, it told the processors, that while, with few exceptions, Mother Nature "included all the necessary vitamins in basic *raw* food materials, modern food processing and preserving methods impaired the potency of these vitamins." People now "*want and buy* food products fortified with vitamins."<sup>87</sup> A top vitamin researcher warned millers and sugar refiners that to continue to ask consumers "to disregard Nature's laws" or to make up for the deficiencies in their staples "by judicious use of other foods" was bad business. They must restore the nutrients to their products, for "to blink at the scientific facts, which will presently become common knowledge, will be suicidal for the commercial enterprises concerned."<sup>88</sup>

As if to reinforce that warning, in August 1939 the AMA recommended "restoring" processed foods with enough nutrients to bring them back up to their "high natural levels."<sup>89</sup> But the move was intended as a spur, not a rebuke, to the food industries. They must be enlisted, thought the doctors, to battle the real enemy—the vitamin pill vendors, particularly those who peddled vitamins as cures for illness. The organized doctors also looked askance at "fortification," adding more nutrients to processed foods than they originally contained or adding ones they never had. (Some manufacturers had begun to add vitamin D to frankfurters and chewing gum.)<sup>90</sup> But in 1940 and 1941 they were forced to reexamine this position, as one vitamin—B<sub>1</sub>, or thiamin—came to be regarded as absolutely essential for national defense.

In retrospect it is amazing that so much could have been concluded from the experience of so few. In mid-1939 three doctors at the Mayo Clinic in Rochester, Minnesota, put four teenagers on a diet low in thiamin and found that they became sluggish, moody, "fearful," and "mentally fatigued." Whereas some parents of teenagers might not have seen anything extraordinary in this, the doctors thought they were onto something important. They repeated the experiment with six female housekeepers at the clinic, aged twenty-one to forty-six. When they were deprived of thiamin their ability to work—measured by having them do chest presses—declined markedly. At the early stage of thiamin deprivation, the doctors reported, their symptoms resembled those of neurasthenia, while the later stage resembled anorexia nervosa.<sup>91</sup> When, after eleven days, two of the six were put on a diet much higher in thiamin than normal, their chest-pressing ability rose.<sup>92</sup>

By October 1940, when the results of the second experiment were made public, much of Europe had fallen to the Nazis, the Japanese were on the move in Asia, and America was feverishly rearming. An editorial in the *Journal of the American Medical Association* was quick to see a connection. Carefully avoiding mention of the paltry number of people tested, it warned that the "moodiness, sluggishness, indifference, fear, and mental and phys-

ical fatigue" induced by cutting the thiamin intake "in a group of healthy subjects" were "states of mind and body . . . such as would be least desirable in a population facing invasion, when maintenance of stamina, determination and hope may mean defeat or successful resistance."<sup>93</sup> One of the Mayo experimenters, Dr. Russell Wilder, declared that a deficiency in thiamin was "a principal cause for" the majority of cases "commonly spoken of as loss of morale." It was Hitler's secret weapon in occupied Europe, rumor had it, where the Nazis were "making deliberate use of thiamin starvation to reduce the populations . . . to a state of depression and mental weakness and despair which will make them easier to hold in subjection." Canadian colleagues had told him that some Canadian soldiers recruited directly from the relief rolls who had initially been "defiant" or "depressed" had "after satisfactory attention to their nutritional deficiencies" become "perfectly manageable and effective."<sup>94</sup> This confirmed his own experiment, in which adding thiamin to young peoples' diets increased mental alertness and almost doubled their capacity for physical work. (It seems not to have affected their moodiness.)<sup>95</sup>

In the North American diet, this "morale vitamin," as it came to be called, was found in beans, legumes, and, most commonly, whole wheat flour. Yet in 1940 only 2 percent of the bread Americans bought was of a whole wheat variety.<sup>96</sup> Modern milling processes removed from 70 to 80 percent of wheat's thiamin to produce the white wheat flour that was the American staple. Wilder warned that thiamin consumption had been steadily declining for over one hundred years and had now dropped to critical levels.<sup>97</sup> Nutrition experts were duly alarmed, but they thought it impossible to convince Americans to switch back to whole wheat bread, especially since the mere mention of whole grain breads evoked memories of the heavy, grim-tasting loaves of World War I. The best solution, it seemed, was to put thiamin back into white wheat flour. In 1940 the average American ate two hundred pounds of it, and it constituted about one-quarter of his or her caloric intake.<sup>98</sup> It did not take much persuasion for flour millers, who had resisted all previous efforts to modify white flour, to come around. They did not relish being accused of leaving the country defenseless in the face of foreign invasion.<sup>99</sup> So in early February 1941 they began turning out flour "enriched" not only with vitamin B<sub>1</sub> but also with iron and pellagra-preventing nicotinic acid.<sup>100</sup>

By May 1941 Vice-President Henry Wallace thought the benefits of thiamin-awareness were becoming apparent. Addressing a national conference on nutrition, he extolled a radio commentator who said, "What puts the sparkle in your eye, the spring in your step, the zip in your soul? It is the oomph vitamin!" It did seem, said Wallace, that to many Americans the addition of the B vitamins to the diet "makes life seem enormously worth living."<sup>101</sup> That November, when Gallup asked Americans to name a vitamin they had heard a lot about in recent months, the overwhelming majority named vitamins B<sub>1</sub> and B<sub>2</sub>. But the poll also indicated that 84

percent of housewives could not explain the difference between calories and vitamins.<sup>102</sup> To them, vitamins seemed to provide “pep” and “energy.”

Alas, pumping thiamin back into the national diet had no discernible effect on the morale of the nation. Within a few years, no one—not even Wilder—was linking it with morale. In any event, Wilder’s estimates of how much was required were later shown to be quite inflated; the normal American diet provided it in more than adequate quantities. Nevertheless, enrichment did give official blessing to an important idea: that one could look well fed and actually be starving. In 1941 the AMA warned that “hidden hunger” struck those who “satisfy[d] themselves with vast quantities of food” but did not eat enough essential nutrients.<sup>103</sup> Washington’s announcement of the flour enrichment program was hailed as “designed to rescue some 45,000,000 Americans from hungerless vitamin famine.”<sup>104</sup> It also represented official acknowledgment of the idea that processing deprives essential foods of important nutrients. The two ideas, joined together, would become the basis for every future revival of concerns over food and health. “The discovery that tables may groan with food and that we may nevertheless face a form of starvation has driven home the fact that we have applied science and technology none too wisely in the preparation of food,” said a *New York Times* editorial in December 1941.<sup>105</sup>

The Depression had begun with Americans concerned over people who were *feeling* hunger and might be experiencing starvation—that is, the deterioration of health that resulted from the wasting away of the body. It ended with the diffusion of completely different concepts of hunger and starvation: hunger that could not be felt, starvation that could not be seen. It had begun with media paeans to the wonders of modern American food processing. It ended with official warnings that science and technology had deprived American food of its healthful properties. The war and the conditions of the postwar era would push these concerns to the back burner, but they would ultimately reemerge to play important roles in shaping the modern American diet.