Notes

Introduction


4 “We were jumped on!”. David Kritchevsky, interview with author, May 31, 2005.


6 In writing this book: The author has no conflicts of interest; she has never received any financial or in-kind support, either directly or indirectly, from any party with an interest related to any of the topics covered in this book.

1. The Fat Paradox: Good Health on a High-Fat Diet


9 “The chief occasion for vegetables . . .”: Ibid., 23.


9 “They should have been in a wretched state”: Stefansson, *Fat of the Land*, xvi.


9 would certainly die: Ibid., 71.

9 “The symptoms brought on at Bellevue”: Ibid., 69.


12 subsistence was “easy” . . . “labor light” . . . “seem sedentary”: Mann, “Cardiovascular Disease in the Masai,” 309.

12 no evidence of a heart attack: Ibid.


13 Nor did the Masai suffer from other: Mann, “Cardiovascular Disease in the Masai,” 303–306.


14 he found that he could reproduce: Ibid., 24–29.


15 “no error could account for”: Hrdlička, *Physiological and Medical Observations*, 40–41.

15 “not one of these . . . demented or helpless”: Ibid., 158.

“relative immunity . . . The negroes, when they can get it”: Ibid.


fat was “the determining criteria” when hunting: Philippe Max Rouja, Éric Dewailly, and Carole Blanchet, “Fat, Fishing Patterns, and Health among the Bardi People of Northern Western Australia,” *Lipids* 38, no. 4 (2003): 399–405.

was considered “rubbish” . . . “to be enjoyed”: Ibid., 400.


most of the game “were too lean for use”: Ibid., 152.

2. Why We Think Saturated Fat Is Unhealthy


Keys discovered a passion: Blackburn, interview with Keys, *Health Revolutionary*.


Contemporaries note that rabbits: Ancel Keys was one of the researchers making this objection; Ancel Keys, “Human Atherosclerosis and the Diet,” *Circulation* 5, no. 1 (1952): 115–118.


there was “overwhelming evidence”: Keys, “Human Atherosclerosis and the Diet,” 116.


24 Keys suggested that researchers: Keys, “Diet and the Epidemiology of Coronary Heart Disease,” 1914.


26 was far more heterogeneity: Qintão, Grundy, and Ahrens, “Effects of Dietary Cholesterol on the Regulation of Total Body Cholesterol in Man.”

26 one of his most “gratifying contributions”: Ahrens, “After 40 Years of Cholesterol-Watching,” 1444.


29 Keys thought fat must make people fat: Keys, “Diet and the Epidemiology of Coronary Heart Disease,” 1918.


29 A good portion of his early papers: Keys, “Diet and the Epidemiology of Coronary Heart Disease,” 1913–1914; Ancel Keys and Francisco Grande, “Role of Dietary Fat in

30 *He and his wife, Margaret . . . the locals’ cholesterol:* Keys et al., “Effects of Diet on Blood Lipids in Man,” 34–52.


30 *It must instead be due to diet:* Keys and Grande, “Role of Dietary Fat in Human Nutrition,” 1520–1530.

30 *only the factor of fat appears*; Keys et al., “Effects of Diet on Blood Lipids in Man,” 42.

30 *dominated by the long-time effects*; Keys, “Diet and the Epidemiology of Coronary Heart Disease,” 1912.


32 *he published a specific mathematical formula:* Keys, Anderson, and Grande, “Serum Cholesterol in Man: Diet Fat and Intrinsic Responsiveness.”

he had secured an appointment: Kromhout, Menotti, and Blackburn, eds., *The Seven Countries Study*, 196.

32 Keys is the only researcher he mentions by name: Ibid., 76.


35 “I remember the mood in the lab”: Henry Blackburn, interview with author, November 9, 2008.


36 Keys was fully aware: Keys, *Symposium on Atherosclerosis*, 119.

36 “negative versus positive”: Ancel Keys, “Epidemiologic Aspects of Coronary Artery Disease,” 552.


37 as he wrote, he chose places that he thought: Alessandro Menotti, email message to author, September 10, 2008.

37 “where he found enthusiastic help”: Menotti, email message to author, September 10, 2008; Flaminio Fidanza, another original team member on the Seven Countries study, confirmed this assessment: Flaminio Fidanza, email message to author, September 16, 2008.

37 “Keys just had a personal aversion”: Blackburn, interview.


according to one tally: Calculation by John Aravanis, M.D., from personal communication with his father, Christos Aravanis, who directed the Greek portion of the Seven Countries Study.

the number was ridiculously low . . . was 290: Keys, Seven Countries: A Multivariate Analysis, 65.


Saturated fat comprised: Keys, “Coronary Heart Disease in Seven Countries.”


“strict adherence [to Lent] did not seem to be common”: Keys, “Coronary Heart Disease in Seven Countries,” I-166.


“no attempt was made”. . . “a remarkable and troublesome omission”: Katerina Sarri and Anthony Kafatos, letter to the editor, “The Seven Countries Study in Crete: Olive Oil, Mediterranean Diet or Fasting?” Public Health Nutrition 8, no. 6 (2005): 666.

“we should not”. . . “the ideal thing all the time”: Daan Kromhout, interview with author, October 4, 2007.


category of foods . . . which had a correlation coefficient: Alessandro Menotti et al., “Food Intake Patterns and 25-Year Mortality from Coronary Heart Disease: Cross-Cultural Correlations in the Seven Countries Study,” European Journal of Epidemiology 15, no. 6 (1999): 507–515.

“too troublesome” to recode: Alessandro Menotti, interview with author, July 24, 2008.

“Keys was very opposed to the sugar idea”: Kromhout, interview.

“He was so convinced that fatty acids” . . . “own point of view”: Ibid.


“Yudkin and his commercial backers”: Ancel Keys and Margaret Keys, How to Eat Well and Stay Well the Mediterranean Way (Garden City, NY: Doubleday, 1975), 58.

“Sugar was never discussed properly”: Menotti, interview.


3. The Low-Fat Diet Is Introduced to America


Procter & Gamble (P&G) designated: H. M. Marvin, 1924–1964: The 40 Year War on Heart Disease (New York: American Heart Association, 1964), adapted from an address originally presented before officers of affiliated Heart Associations in 1956.

"suddenly the coffers were filled . . . dreams are made of?": Ibid., 51.

"bang of big bucks" . . . "launched": Ibid.

seven chapters . . . $2,650,000: Ibid., 56.

three hundred chapters . . . $30 million annually: Moore, Fighting for Life, 77; $30 million: Marvin, 1924–1964: The 40 Year War on Heart Disease.

AHA took in 40 percent more: Moore, Fighting for Life, 72.


Malhotra studied the disease: S. L. Malhotra, “Epidemiology of Ischaemic Heart Disease in Southern India with Special Reference to Causation,” British Heart Journal 29, no. 6 (1967): 898; S. L. Malhotra, “Geographical Aspects of Acute Myocardial Infarction in India with Special Reference to Patterns of Diet and Eating,” British Heart Journal 29, no. 3 (1967): 337–344.


The majority of the 179 Roseto men . . . the years of the survey: Ibid.


Keys concluded that the Roseto data: Ibid., 139.


The type of fat also varied dramatically: Ibid.

Resisting these “idols of the mind”: Francis Bacon, Novum Organum Scientiarum, England, 1620, Book 1: XXXIV.


Ahrens was objecting: Aherns et al., “Dietary Control of Serum Lipids in Relation to Atherosclerosis,” 1906.


high triglyceride levels were far more common: Margaret J. Albrink, “The Significance of Serum Triglycerides,” *Journal of the American Dietetic Association* 42 (1963): 29–31.


whereas a contrasting vial: Ibid.

“normal chemical process which occurs”: Ibid., 134.


“But let’s talk . . . No, we’re researching this” . . . “He always opposed any statement”: Jeremiah Stamler, interview with author, April 22, 2009.

‘And Yudkin!’ . . . ‘scoundrel’: Ibid.


cholesterol numbers were fully a quarter higher: José Day et al., “Anthropometric, Physiological and Biochemical Differences between Urban and Rural Maasai,” *Atherosclerosis* 23, no. 2 (1976): 357–361.


he thought were a better reference point: Ancel Keys and Margaret Keys, *How to Eat Well and Stay Well the Mediterranean Way* (Garden City, NY: Doubleday, 1975), xi.


ends by recommending: Ibid., xii.


could be found: Carl C. Seltzer, “The Framingham Heart Study Shows No Increases in Coronary Heart Disease Rates from Cholesterol Values of 205–264 mg/dL,” Giornale Italiano di Cardiologia (Padua) 21, no. 6 (1991): 683.

In fact, half of the people . . . Anderson, Castelli, and Levy, “Cholesterol and Mortality.”

“There is an 11% increase”: Ibid., 2176.


“That went over . . . wanted us to find”: George V. Mann, interview with author, October 5, 2005.


“the more saturated fat one ate”: William P. Castelli, “Concerning the Possibility of a Nut . . .” Archives of Internal Medicine 152, no. 7 (1992): 1371–1372 (emphasis added).

the problem must have been one of imprecise collection: William P. Castelli, interview with author, March 16, 2007.


“pretty devastating . . . she was right . . . forceful and persuasive”: Mann, interview.


AHA president worked closely: Moore, Fighting for Life, 99 and 271.

AHA presidents “almost routinely” directed: Moore, Fighting for Life, 98. See also, 271–276.

White helped found: “The International Society of Cardiology (ISC) and CVD Epidemiology,” Division of Epidemiology & Community Health of the School of Public Health, University of Minnesota, http://www.epi.umn.edu/cvdepi/essay.asp?id=186.


“This was a daunting task”: George V. Mann, “A Short History of the Diet/Heart Hypothesis,” 12.


“supported the dogma” . . . “more political than scientific”: George V. Mann, “Coronary Heart Disease—The Doctor’s Dilemma,” American Heart Journal 96, no. 5 (1978), 569.

4. The Flawed Science of Saturated versus Polyunsaturated Fats

“causal relationships are not claimed”: Ancel Keys et al., “The Diet and 15-Year Death Rate in the Seven Countries Study,” American Journal of Epidemiology 124, no. 6 (1986): 903–915.


and instructed them to reduce their consumption: George Christakis et al., “Summary of the Research Activities of the Anti-Coronary Club,” Public Health Reports 81, no. 1 (1966): 64–70.


“somewhat unusual” . . . risk factors . . . result was buried: George Christakis et al., “Effect of the Anti-Coronary Club Program on Coronary Heart Disease Risk-Factor Status,” Journal of the American Medical Association 198, no. 6 (1966): 597–604.


“Was it not possible” . . . “that a diet”: Dayton et al., “A Controlled Clinical Trial of a Diet High in Unsaturated Fat,” II-2.


a top nutrition expert: Barbara V. Howard, interview with author, June 13, 2005.


a traditional Norwegian diet . . . 40 percent fat: Ibid., 35.

“cholesterol-lowering” diet: Ibid., 27.

the diets contained about the same amount of fat: Ibid., 82.

"not with enthusiasm": Ibid., 30.

Leren published his findings: Ibid.

eating a great deal of hard margarine and hydrogenated fish oils: Ibid., 35.


Stamler remembers: Jeremiah Stamler, interview with author, April 22, 2009.


various confirmation tests: Ibid., I-10–I-11.

“A housewife would order . . . done so well”: Stamler, interview, April 22, 2009.


to promoting a “prudent” diet: Stamler, interview, April 22, 2009.


85 “has become a stampede”: Karl Robe, “Focus Gets Clearer on Confused Food Oil Picture,” *Food Processing* (December 1961): 62.

85 **higher and higher amounts of polyunsaturated oils**: Ibid.


86 ‘must make alliances with’: Stamler, interview, April 22, 2009.


88 **easier to digest**: Ibid., 5.


88 **“lardy” flavor . . .  “true taste”**: Ibid., 11.

88 **“Kitchen odors”**: Ibid., 12.


89 **one and a half billion . . .  sixty-five plants . . .  eighth-ranking . . .  always in the lead**: Ibid., 6 (italics in original).

89 **‘Crisco’ written in their place**: Procter & Gamble, in *The Story of Crisco*, 6.


floated various possible explanations: Ibid., 1476.


the treatment group was found to have: Barbara J. Shaten et al., “Lung Cancer Mortality after 16 Years in MRFIT Participants in Intervention and Usual-Care Groups: Multiple Risk Factor Intervention Trial,” Annals of Epidemiology 7, no. 2 (1997): 125–136.

I don’t know! . . . “Not rationalized!”: Stamler, interview, May 1, 2009.


One of the things that Stamler told me: Stamler, interview, April 22, 2009.


Another early study that raised a health concern about corn oil was: Arthur J. Patek et al., “Cirrhosis-Enhancing Effect of Corn Oil,” *Archives of Pathology* 82, no. 6 (1966): 596–601.


clearly dismayed... “even more puzzling”: Manning Feinleib, interview with author, April 20, 2009.


When I mentioned all this to Stamler: Stamler, interview, May 1, 2009.


researchers were unable to find: Ibid.


“It had no INDEPENDENT effect”: Stamler, interview, April 22, 2009.

was to worship God: Jack H. Medalie et al., “Five-Year Myocardial Infarction Incidence—II. Association of Single Variables to Age and Birthplace,” *Journal of Chronic Disease* 26, no. 6 (1973): 325–349.


"it was not scientific": A. Gerald Shaper, Interview with Henry Blackburn, in “Preventing Heart Attack and Stroke: A History of Cardiovascular Disease Epidemiology,” last accessed February 14, 2014, http://www.epi.umn.edu/cvdepi/interview.asp?id=64.

"no proof that such activity offsets": “Can I Avoid a Heart Attack?,” 605.

"cure should not be worse": Ibid., 607.

In fact, Seymour Dayton was concerned: Dayton et al., “A Controlled Clinical Trial of a Diet High in Unsaturated Fat,” II-57.


5. The Low-Fat Diet Goes to Washington


Mottern found them objectionable: Nick Mottern, interview with author, March 25, 2009.

And he believed the meat industry to be wholly corrupt: Mottern, interview.

In his eyes, the controversy pitched: Mottern, interview.


“I admired them”: Mottern, interview.


this variance alone could have explained: Rekha Garg, Jennifer H. Madans, and Joel C. Kleinman, “Regional Variation in Ischemic Heart Disease Incidence,” Journal of Clinical Epidemiology 45, no. 2 (1992): 149–156.


a research finding that just three: An Pan et al., “Red Meat Consumption and Mortality: Results from 2 Prospective Cohort Studies,” Archives of Internal Medicine 172, no. 7 (2012): 555–563.


the top meat eaters were also found: Pan et al., “Red Meat Consumption and Mortality,” 557.


“rich in meat” . . . “linked to heart disease”: Ibid., 2.

“killer diseases”: Ibid., 1.


has been echoed: Geoffrey Cannon, *Food and Health: The Experts Agree* (London: Consumers’ Association, 1992).


“treated with equal carelessness”: Ibid., 81.

apparently so fat . . . now-extinct species: Ibid., 72.

food included beef . . . does not mention: Ibid., 87.

Infants were fed beef: Ibid., 132.

Americans ate twice as much beef: Ibid., 192.


Derived from a paper by Carrie R. Daniel, who used two sources of government data: The USDA food-disappearance data and the NHANES twenty-four-hour recall survey, with

115 chicken was considered . . . for their eggs: Ibid., 103.
115 according to different sources of government data: Daniel et al., “Trends in Meat Consumption in the USA.”
117 “avoid leafy vegetables”: Cummings, The American and His Food, 128.
117 fruit and salad were avoided: Root and De Rochemont, Eating in America, 130.
117 “incorrect to describe Americans”: Ibid., 232.
118 “plenty of them over 60”: Paul D. White, “Coronary Heart Disease: Then and Now,” Journal of the American Medical Association 203, no. 9 (1968): 282.
119 they did not revive for another twenty years: Root and De Rochemont, Eating in America, 211.
119 Fat intake did rise during those years: Mohamed A. Antar, Margaret A. Ohlson, and Robert E. Hodges, “Perspectives in Nutrition: Changes in Retail Market Food Supplies in the United States in the Last Seventy Years in Relation to the Incidence of Coronary Heart Disease, with Special Reference to Dietary Carbohydrates and Essential Fatty Acids,” American Journal of Clinical Nutrition 14 (1964): 169–178.


The question . . . is . . . : Broad, “NIH Deals Gingerly with Diet-Disease Link,” 1176.


benefits could be expected: Broad, “NIH Deals Gingerly with Diet-Disease Link,” 1176.


The board had actually been solicited by the USDA: Broad, “NIH Deals Gingerly with Diet-Disease Link,” 1175.


best in the world: Broad, “NIH Deals Gingerly with Diet-Disease Link,” 1175.


academy were at odds!: Hegsted, “Washington—Dietary Guidelines.”


125 The Times concluded: Ibid.


129 Researchers have subsequently suggested: Jess G. Fiedorowicz and William G. Haynes, “Cholesterol, Mood, and Vascular Health: Untangling the Relationship. Does Low Cholesterol Predispose to Depression and Suicide, or Vice Versa?” Current Psychiatry 9, no. 7 (2010).


129 In addition, populations found to have very low cholesterol: Tanaka et al., “Risk Factors for Cerebral Hemorrhage and Cerebral Infarction in a Japanese Rural Community”; Kagan


130 “I can’t fully explain it and it worries”: Ibid.


130 pushed the data . . . it seemed more like “advocacy”: Ibid., 2091 and 2093.


130 “keystone in the arch”: Kolata, “Heart Panel’s Conclusions Questioned,” 40.


132 in March 1984, Time magazine ran: “Sorry It’s True: Cholesterol Really Is a Killer.”

133 wrote a skeptical piece: Kolata, “Heart Panel’s Conclusions Questioned,” 40–41.


134 there was “a price to pay”: Donald J. McNamara, interview with author, September 26, 2005.

134 “public is being hosed”: Quoted in Moore, Heart Failure, 63.

6. How Women and Children Fare on a Low-Fat Diet

135 the agency has long been influenced: Marion Nestle, Food Politics (Berkeley, CA: University of California Press, 2002).


hefty fee . . . chastened into: Rothstein, Public Health and the Risk Factor, 331–332.


“we also found improvements . . . quibble about that”: Ornish, interview, May 14, 2009.


great bulk” of their food . . . “legumes, and green leaves”: Ibid., 21.
to suffer from . . . to contract rheumatoid arthritis: Ibid., 9.
5 inches taller . . . 23 pounds . . . narrower waists . . . far more muscular . . . manual labor: Ibid.
“harmful” for certain populations: Ibid., 937.
“high risk” . . . “careful supervision”: Ibid., 938.
The nutritional needs . . . inactive octogenarian”: Ibid.
“made an unconscionable exaggeration”: Ibid., 40.
The proposed changes would affect”: Ibid., 521–525.
“provide 60 percent of dietary calcium”: Ibid., 523.
The AAP feared that rates of iron deficiency: Ibid.
“nothing in vegetarianism per se”: Ibid., 62.


“overzealous”: Ibid., 537.

“nutritional dwarfing”: Ibid., 540.


authors concluded that “lower fat intakes . . .”: Obarzanek et al., “Safety of a Fat-Reduced Diet,” 58.


researchers observed no difference: Lapinleimu et al., “Prospective Randomised Trial in 1062 Infants”; Harri Niinikoski et al., “Regulation of Growth of 7- to 36-Month-Old Children by Energy and Fat Intake in the Prospective, Randomized STRIP Baby Trial,” Pediatrics 100, no. 5 (1997): 810–816; Harri Niinikoski et al., “Impact of Repeated


154 *investigators found no vitamin deficiencies*: Ibid., 1317S.


He compared some 140 Gambian infants . . . 8 pounds more than the Gambians . . . : Ibid., 1259S–1260S.

5 percent of energy as fat: Ibid., 1261S.


18 percent fat: Prentice, “Fat and Energy Needs of Children,” 1256S.

5 percent of energy as fat: Ibid., 1261S.


researchers had been warning: Reviewed in Robert H. Knopp et al., “Sex Differences in Lipoprotein Metabolism and Dietary Response: Basis in Hormonal Differences and Implications for Cardiovascular Disease,” Current Cardiology Reports 8, no. 6 (2006): 452–459.


The correlation was “striking”: Ibid., 707.


number of epidemiological studies: Castelli et al., “HDL Cholesterol and Other Lipids,” 769–770.


open secrets about statins: LaRosa et al., “Intensive Lipid Lowering Atorvastin”; Ray et al., “Statins and All Cause Mortality in High Risk Primary Prevention.”

journal editors were known to: Robert H. Knopp, interview with author, February 5, 2009.

one oil chemist described it: Gerald McNeill, interview with author, December 10, 2012.


women also saw their HDL-cholesterol levels drop: Actually, these numbers reflect the decrease in a subfraction of HDL-cholesterol called HDL2. The average drop was 16.7 percent for women in the “hypercholesterolemic” group, which started out with high cholesterol, and 7.1 percent for the “hyperlipidemic” group, which started off with high triglycerides. Their total HDL-cholesterol levels went down, too: 7.6 percent and 3.5 percent, respectively.


Knopp summed up: Robert H. Knopp et al., “Gender Differences in Lipoprotein Metabolism and Dietary Response: Basis in Hormonal Differences and Implications for Cardiovascular Disease,” Current Atherosclerosis Reports 7, no. 6 (2005): 472–479.

“alternative dietary interventions”: Ibid., 477.


testified that men and women in Japan: Gio Gori, Statement to the Senate Select Committee on Nutrition, Select Committee on Nutrition and Human Needs, United States Senate, Volume No. II, Diet Related to Killer Diseases (July 28, 1976): 176–182.

“Now I want to emphasize . . . that food causes cancer”: Ibid., 180.


169 “My personal view is that”: Arthur Schatzkin, interview with author, May 1, 2009.


170 “Rolls Royce” . . . “final word”: Ibid.

170 Robert Knopp told me: Knopp, interview.

Jacques Rossouw: Ibid.


7. Selling the Mediterranean Diet: What Is the Science?


The idea had a simple origin, she explains . . . Trichopoulou knew: Antonia Trichopoulou, interview with author, October 1, 2008.

“We had started cutting down olive trees” . . . She had an intuitive sense: Ibid.

“men of 80 to 100”: Ancel Keys et al., Seven Countries: A Multivariate Analysis of Death and Coronary Heart Disease (Cambridge, MA: Harvard University Press, 1980), 76.

“We were freezing in our unheated house”: Ancel Keys, “Mediterranean Diet and Public Health,” American Journal of Clinical Nutrition 61, no. 6, suppl. (1995): 1322S.

“All the way to Switzerland” . . . “warm all over”: Ancel Keys and Margaret Keys, Eat Well and Stay Well the Mediterranean Way (Garden City, NY: Doubleday, 1975), 2.

Keys recalled their delight in dining: Ibid., 4.

“that is the Mediterranean to us”: Ibid., 28.

he reissued his 1959 cookbook: Ancel Keys and Margaret Keys, Eat Well and Stay Well (New York: Doubleday, 1959); Keys and Keys, Eat Well and Stay Well the Mediterranean Way. All subsequent citations will refer to this later edition.

“We just wanted to raise the issue”: Trichopoulou, interview.

It had been an uphill battle: Anna Ferro-Luzzi, interview with author, July 22, 2008.

WHO, which had a greater interest in working: Elisabet Helsing, interview with author, July 30, 2008.

there were “substantial differences” . . . “more butter”: Keys and Keys, Eat Well and Stay Well, 38–39.


“impossible enterprise”: Ibid., 25.

“while very attractive” . . . “should not be used”: Ibid., 26.

did not think of themselves as having a “diet”: Ferro-Luzzi, interview with author, July 22, 2008.

“And bureaucrats didn’t like the idea”: Ibid.


“You cannot advise less fat!”: Trichopoulou, interview.


few scientific grounds” for the claim: Ibid., 806. Ferro-Luzzi’s paper solicited a scathing reply not from Antonia Trichopoulou, but from her husband, Dimitrios, also a professor of epidemiology, with joint appointments at the Athens Medical School and Harvard School of Public Health. Dimitrios defended his wife’s research on olive oil generally but did not address any of the methodological problems that Ferro-Luzzi had pointed out in the data on Greek fat consumption. And in an example of the kind of derogatory tone sometimes used among nutrition researchers to defeat their opponents, Dimitrios concluded his letter by suggesting that Ferro-Luzzi’s paper “would have been much more useful if it were written more carefully, with more attention to scientific evidence and less arrogance.” Dimitrios Trichopoulos, “Letter to the Editor: In Defense of the Mediterranean Diet,” European Journal of Clinical Nutrition 56 (2002): 928–929; Ferro-Luzzi’s reply is here: Anna Ferro-Luzzi, W. Philip T. James, and Anthony Kafatos, “Response to the Letter Submitted by D. Trichopoulos Entitled, ‘In Defense of the Mediterranean Diet,’ ” European Journal of Clinical Nutrition 56 (2002): 930–931.

took him to a local tavern: Trichopoulou, interview, and Walter C. Willett, interview with author, February 8, 2006.


Trichopoulou remembers: Trichopoulou, interview.

“their jaws dropped”: Greg Drescher, interview with author, August 14, 2008.

“us in the culinary community” . . . “We were depressed about it”: Ibid.

“Willett was the pivotal figure”: Drescher, interview with author, August 14, 2008.


“The science just seemed to me too impressionistic”: Marion Nestle, interview with author, July 30, 2008.

“correct in that the evidence”: Lawrence H. Kushi, interview with author, September 6, 2008.

they had only one reviewer: Marion Nestle, email message to author, August 5, 2008.


Ferro-Luzzi explained to me: Ferro-Luzzi, interview.


while the Hale-Bopp comet: Narsai David, email message to author, August 17, 2008.

remembers Laura Shapiro: Laura Shapiro, interview with author, August 5, 2008.

“not just a bunch of slides”: Drescher, interview.

says Shapiro: Shapiro, interview.

IOOC tried to generate: Fausto Luchetti, interview with author, November 16, 2008.

the IOOC was glad: Ibid.

tucked into flower arrangements . . . shopping bags: Julian, “Mediterranean Diet: A Healthy Alternative?”

“We’d start with the IOOC money”: Drescher, interview.

“aligning the interests”: Ibid.


as Henry Blackburn recounts: Blackburn, interview.


in a later publication, only one: Den C. Hartog et al., Dietary Studies and Epidemiology of Heart Disease (The Hague, Holland: Stichting tot wetenschappelijke Voorlichting op Voedingsgebied, 1968), 57.

“what was good for commodities”: Ferro-Luzzi, interview with author, July 22, 2008.


also targeted European doctors . . . researchers to complain: Ibid.


“the fact that it was laundered”: Kushi, interview.

“couldn’t get with the program” . . . “couldn’t justify my presence”: Shapiro, interview.

“little olive oil ambassadors”: Ibid.

“food world is particularly prey to corruption”: Nancy Harmon Jenkins, interview with author, August 6, 2008.


next “nutritional eden”: Ibid.

“a velvet glove around the steely reality”: Ibid.


Ferro-Luzzi recorded: Ibid.

might help prevent... evidence so far is very weak: Lawrence Kushi and Edward Giovannucci, “Dietary Fat and Cancer,” American Journal of Medicine 113, no. 9, suppl. 2 (2002): 63S–70S.


“a high intake of olive oil”... “significant and substantial”: Ibid., 2607.

never actually measured the olive oil: Antonia Trichopoulou, email message to author, December 13, 2013.


“estimated” its use: Katsouyanni, ibid.

one of the paper’s tables: Trichopoulou et al., “Adherence to a Mediterranean Diet,” 2602.


“low level of comfort”: Ibid.


204 *In Spain, too*: Grigg, “Olive Oil, the Mediterranean and the World,” 168.


205 *as Ancel Keys originally proposed*: Keys, “Coronary Heart Disease in Seven Countries,” I-88.


206 *Anna Ferro-Luzzi attended an international meeting*: Ferro-Luzzi, interview with author, July 22, 2008.


Trichopoulou replies that her efforts: Antonia Trichopoulou, interview with author, October 1, 2008.

“This is our cry!”: Ibid.

motivated as much by “Mother Greece”: James, interview; Nestle, interview with author, July 30, 2008; Serra-Majem, interview.

Antonia is perhaps guilty”: Elisabet Helsing, interview with author, July 30, 2008.


“Suspected Research Fraud”: White, “Suspected Research Fraud.”


“We have to take care”: Lluís Serra-Majem, interview with author, October 1, 2008.


“I wanted to leave the door open”: Serra-Majem, interview.


“So my conservative conclusion is”: Stampfer, interview.


PREDIMED’s appendix: Ibid.


“absorbed into the clay”: Ibid., and Christos Aravanis, letter to author, October 6, 2008.

“If the thirty-three lined up perfectly”: Sander Greenland, email message to author, January 5, 2008.


Keys had published a paper: Ibid.

“high in saturated fatty acids”: Kushi et al., “Health Implications of Mediterranean Diets in Light of Contemporary Knowledge. I,” 1410S.


“major hallmark” of his pyramid: Kushi, “Health Implications of the Mediterranean Diets in Light of Contemporary Knowledge. 2,” 1416S.

Willett and his colleagues don’t cite: Ibid. Willett, “Health Implications of Mediterranean Diets in Light of Contemporary Knowledge. 2.”

Willett told me: Walter Willett, email message to author, November 29, 2008.


“consisted chiefly of foods of vegetable origins”: Ibid., 100.

“We are hungry most of the time. . . . 72% of the families questioned”: Ibid., 105.


Teti to conclude: Ibid., 9.


“Meat is what . . . who had eaten meat”: Ibid., 15.


“hardly any pastries were eaten”: Kromhout et al., “Food Consumption Patterns in the 1960s in Seven Countries,” 892.


8: Exit Saturated Fats, Enter Trans Fats

drop by his office to "ok": Mark Matlock, interview with author, November 7, 2005.


his “greatest triumph”: Quoted in ibid.

“We want to hold this market”: D. G. Wing, Testimony on Behalf of the American Soybean Association, to the US Congress, House Agricultural Committee, Hearings in March, 1948, printed in Soybean Digest (April 1948): 22.


the name “ ‘tree lard’ for it”: Drake, interview.


the Wall Street Journal described it: Ibid.

"racist picture . . . to tell you the truth": Drake, interview.

"only 5 percent to 10 percent": Kalyana Sundram, interview with author, January 8, 2008.

have a chilling effect: Sundram, interview.


"a trade issue under the guise": Ong, interview.

Ronk’s testimony . . . was widely credited: Crossette, “International Report: Malaysia Opposes Labels on Palm Oil.”


Nabisco spokeswoman: Ibid.

yet some products: Ibid.


his “nuclear” option: Ong, interview.


ASA was well-aware: Drake, interview.

“pretty scary,” “really shook us up” . . . “attacking one oil”: Ibid.


the end of a “bitter, two-year feud”: Ibid.

explained Ron Harris: Ron Harris, interview with author, August 20, 2007.


"Over my career . . . leaps and bounds": Ibid.

18 billions pounds . . . more than 80 percent: Robert Reeves, email message to author, February 2, 2004.


“a big wheel”: Fred A. Kummerow, interview with author, November 6, 2005.


had 150,000 dietary-guideline pamphlets printed up: American Heart Association, Committee on Nutrition, “Diet and Heart Disease: This Statement was Developed by
the Committee on Nutrition and Authorized for Release by the Central Committee for Medical and Community Program of the American Heart Association,” American Heart Association, 1968.


242 “any of the heart association” . . . giving him money: Kummerow, interview, September 25, 2003.


244 “the ringleader on trans”: Applewhite, interview.


244 Kummerow found them intimidating: Kummerow, interview with author, August 21, 2007.


as a USDA chemist . . . described it to me: Gary List, interview with author, February 15, 2008.

“We spent lots of time” . . . “nothing either wrong or immoral”: Wiedermann, letter to author, March 19, 2008.


Kummerow’s disturbing finding: Ibid., 29.


when the reality was 22 percent: Mary G. Enig, Trans Fatty Acids in the Food Supply: A Comprehensive Report Covering 60 Years of Research, 2nd ed. (Silver Spring, MD: Enig Associates, 1995), 152.

According to her measurements: Ibid., 108.


“trans fatty acids do not pose any harm”: Ibid.

publicly wondered in a letter: Ibid.


read and been troubled . . . to look into it: Martijn B. Katan, interview with author, September 27, 2005.


“It took some persuasion”: Ibid.


“I thought the HDL-effect must be incorrect”: Katan, interview.


“not totally convincing”: Hunter, interview.

says Katan: Katan, interview.


254 “close all of them”: Korver, interview.


256 “therefore neutralize them”: Joseph T. Judd, interview with author, October 27, 2005.


256 *recalled Judd*: Judd, interview.


256 *acknowledged Hunter*: Hunter, interview.

256 *found himself transferred*: George Wilhite, interview with author, February 26, 2008.

256 *said Michael Mudd*: Michael Mudd, interview with author, September 30, 2005.

256 *said Mudd*: Ibid.


257 *Katan considered the report*: Katan, interview.

9. Exit Trans Fats, Enter Something Worse?


“I'll never forget as long as I live”: Michael Mudd, interview with author, September 30, 2005.

“It's a month that will live with me in infamy”: Rick Cristol, interview with author, October 27, 2005.

“The industry went nuclear over it”: Martijn B. Katan, interview with author, September 27, 2005.


After Willett presented his epidemiological findings: Ibid., and Samuel Shapiro, interview with author, December 27, 2005.

No one really knows exactly: Ibid.


Michael Pariza . . . said: Michael Pariza, interview with author, February 6, 2008.


“We are really conducting a very large human-scale”: “Trans Fatty Acids and Risk of Myocardial Infarction,” Toxicology Forum Annual Meeting.


would have excessively disparaged: FDA, Federal Register 68, 41459.

“scientifically inaccurate and misleading”: Ibid., 41452.

“sufficient” to conclude: Ibid., 41444.

were deemed secondary: Ibid., 41448.


Mark Matlock . . . described to me: Mark Matlock, interview with author, November 7, 2005.


“had to confess them”: Bruce Holub, interview with author, September 23, 2007.


said ADM’s Mark Matlock: Matlock, interview, October 9, 2005.

The Big Fat Surprise


exclaimed Gil Leveille: Gil Leveille, interview with author, February 27, 2008.


creamy middle melted . . . wafers tended to break: Ibid.

what he wanted was an injunction: Stephen L. Joseph, interview with author, November 2003.


“Interesterification is akin to”: Gil Leveille, interview with author, June 24, 2006.

“We just don’t know” . . . “another trans lurking”: Ibid.


the oil may actually be beneficial for health: See the entire supplement, Pramad Khasla and Kalyanan Sundram, eds., “A Supplement on Palm Oils,” Journal of the American College of Nutrition 29, no. 3, suppl. (2010): 237S–342S. Note that the editors are employed by the palm oil industry.


As those oils are heated”. Ibid.


Anybody that has a fryer has this problem”: Ibid.


“stuck to the wire floor”: Crampton et al., “Studies to Determine the Nature of the Damage to Nutritive Value,” 18.


Aldehydes are “very reactive compounds . . . reacting constantly”: A. Saari Csallany, interview with author, February 21, 2013.

one of the reasons that aldehydes were ignored: Earl G. Hammond, interview with author, October 9, 2007.


not detected by the standard tests: Csallany, interview; Mark Matlock, interview with author, February 19, 2013; Kathleen Warner, interview with author, November 8, 2013.

One of Csallany’s recent projects: A. Saari Csallany et al., “4-Hydroxynonenal (HNE), a Toxic Aldehyde in French Fries from Fast Food Restaurants,” poster presentation at the HNE Symposium of the 16th Bi-Annual Conference of the Free Radical Society and HNE Symposium, London, September 1–9, 2012.

She would like to do more studies: Csallany, interview.

says Giuseppi Poli: Giuseppi Poli, interview with author, February 12, 2014.


told me he was “stunned” to find: Daniel J. Conklin, interview with author, November 8, 2013.


First they were alarmed, then nothing”: Csallany, interview.


Since I am not a food chemist”: Rudolf Jörg Schaur, email message to author, February 10, 2014.


Large fast-food chains also employ sophisticated: Bob Wainright, email message to author, February 9, 2014.

he couldn’t understand . . . so preoccupied: Poli, interview.

“how deadly used frying oils are”: Lars Wiedermann, email message to author, November 9, 2013.

Mark Matlock at ADM: Mark Matlock, interview with author, February 19, 2013.


NOTES


10. Why Saturated Fat Is Good for You


once told Larry King: Atkins, Larry King Live.


Alice Lichtenstein told me: Alice C. Lichtenstein, interview with author, October 11, 2005.

292 was then commonly treated in France: Alfred W. Pennington, “Treatment of Obesity: Developments of the Past 150 Years,” American Journal of Digestive Diseases 21, no. 3 (1954): 65.
292 Banting took to eating three meals a day: Ibid., 65–69.
293 “fattest meat they could kill”: Ibid., 34.
293 “upper level” . . . “never found it: Ibid., 35.
294 “antiobesity treatments”: Ibid.
294 Pennington wrote extensively: Ibid., 959–964.
295 “attack” and “devour it” . . . “tigerish appetite”: Ibid., 549.
295 Similar results were found: Ibid., 541–559. Also see A. W. Hetherington and S. W. Ranson, “The Spontaneous Activity and Food Intake of Rats with Hypothalamic Lesions,” American Journal of Physiology—Legacy Content 136, no. 4 (1942): 609.
295 insulin . . . appeared to trump all others: C. Von Noorden, Clinical Treatises on Pathology and Therapy of Disorders of Metabolism and Nutrition, Part VIII. Diabetes Mellitus (New York: E. B. Treat, 1907), 60.
295 an animal that had been deprived of insulin: Wilhelm Falta, Endocrine Diseases: Including Their Diagnosis and Treatment (Philadelphia: P. Blakiston’s Son, 1923), 584.


“resorting less and less to drugs”: Ibid., 7.

The population he found on Baffin Island: Otto Schaefer, “Medical Observations and Problems in the Canadian Arctic: Part II,” *Canadian Medical Association Journal* 81, no. 5 (1959): 387


“consists of fresh meat”: Schaefer, “Medical Observations and Problems in the Canadian Arctic: Part II.” 386.

Heart disease . . . “does not appear to exist”: Ibid., 387.

were unable to cope: Gerald W. Hankins, *Sunrise Over Pangnirtung: The Story of Otto Schaefer, M.D.* (Calgary, Canada: Arctic Institute of North America of the University of Calgary, 2000), 160.

a jolting abruptness”: Otto Schaefer, “When the Eskimo Comes to Town,” *Nutrition Today* 6, no. 6 (1971): 11.


called all chronic illnesses the “saccharine diseases”: Thomas L. Cleave and George Duncan Campbell, *Diabetes, Coronary Thrombosis, and the Saccharine Disease* (Bristol: John Wright & Sons, 1966).


“Hey doctor, all I’m eating is steak and eggs!": Eric C. Westman, interview with author, September 12, 2004.


he recounted to me: Gary Foster, interview with author, August 18, 2005.

“heretic” in the field . . . “reasons that were not serious”: Stephen D. Phinney, email message to author, August 28, 2012.

“We were pretty sure we’d prove” . . . “concept was correct”: Ibid.


can be created by the liver: Combined Staff Clinic, “Obesity,” American Journal of Medicine 19, no. 1 (1955): 117


Phinney showed that this phenomenon: Phinney et al., “The Human Metabolic Response to Chronic Ketosis.”


“endothelial function” . . . has also been shown: Jeff S. Volek et al., “Effects of Dietary Carbohydrate Restriction versus Low-Fat Diet on Flow-Mediated Dilation,” Metabolism 58, no. 12 (2009): 1769–1777.


solid scientific backing to the treatment: One suggestive study that predated Westman’s is Bruce R. Bistrian et al., “Nitrogen Metabolism and Insulin Requirements in Obese Diabetic Adults on a Protein-Sparing Modified Fast,” Diabetes 25, no. 6 (1976): 494–504.


Volek says... “people are just quiet”: Jeff Volek, interview with author, April 18, 2006.


Four years after the experiment ended, Shai conducted a follow-up evaluation to see how her subjects had fared. By most measures, the former Mediterranean dieters looked the healthiest and were the slimmest, while those who had been eating an Atkins-style diet gained back most of the weight they had lost. The low-fat group continued to fare the least well on all outcome measures. However, given that four years had elapsed since the end of the trial and that no follow-up efforts had been made to sustain dietary changes (or measure voluntary continued adherence to those changes), these results must be interpreted with caution. It’s quite likely, for instance, that the Mediterranean-diet subjects had an easier time continuing their dietary intervention, because this was their local fare. By contrast, the Atkins’ group was on an atypical diet, believed by most medical professionals to endanger health, and therefore may have been less likely to maintain any dietary changes. Four years after the trial, one can’t know whether outcome measures reflect the original diets. Dan Schwarzfuchs, Rachel Golan, and Iris Shai, Letter to the Editor, “Four-Year Follow-Up After Two-Year Dietary Interventions,” New England Journal of Medicine 367, no. 14 (2012): 1373–1374.


“borders on inexcusable”: Ibid.


made the case recently that the fructose found in fruit: Richard J. Johnson, The Fat Switch (Mercola.com, 2012).


“historical leftover”: Allan Sniderman, interview with author, September 6, 2012.


He understood that even after: Krauss, interview with author, June 12, 2006.

it had been successfully replicated: Benoît Lamarche et al., “Small, Dense Low-Density Lipoprotein Particles as a Predictor of the Risk of Ischemic Heart Disease in Men,” *Circulation* 95, no. 1 (1997): 69–75.


Lichtenstein countered: Krauss, interview; Eric B. Rimm, interview with author, January 7, 2008; Lichtenstein, interview.

it was too complicated: Krauss, interview, August 20, 2012.

Krauss was able to move: Ibid.


became disenchanted: Krauss, interview, August 20, 2012.

as had others before him: Smith and Pinckney, *Diet, Blood Cholesterol and Coronary Heart Disease*. Before Taubes’s book, this self-published compendium was the most important reference for doubters of the diet-heart hypothesis. See also Michael F. Oliver, “It Is More Important to Increase the Intake of Unsaturated Fats than to Decrease the Intake of Saturated Fats: Evidence from Clinical Trials Relating to Ischemic Heart Disease,” *American Journal of Clinical Nutrition* 66, no. 4, suppl. (1997): 980S–986S.

a long row to hoe: Krauss, email message to author, January 4, 2009.

Krauss told me: Krauss, email message to author, June 14, 2009.

agonizing series . . . five “major permutations”: Ibid.


Dariush Mozaffarian, announced: Dariush Mozaffarian, “Taking the Focus off of Saturated Fat,” presented as part of the “Great Fat Debate” at a conference and exposition of the Academy of Nutrition and Dietetics, Boston, Massachusetts, November 8, 2010 (available from the Academy as an audio recording).


“healthy diets are high in carbohydrates”: Ibid., 311.


**Conclusion**


Bibliography


Albrink, Margaret J. “Triglycerides, Lipoproteins, and Coronary Artery Disease.” Archives of Internal Medicine 109, no. 3 (March 1962): 345–359.


Castelli, William P. “Concerning the Possibility of a Nut . . .” *Archives of Internal Medicine* 152, no. 7 (July 1992): 1371–1372.


Csallany, A., Saari, I., Han, D.W., Shoeman, and C. Chen. “4-Hydroxynonenal (HNE), a Toxic Aldehyde in French Fries from Fast Food Restaurants.” Poster presentation at the HNE Symposium of the 16th Bi-Annual Conference of the Free Radical Society and HNE Symposium, London, September 1–9, 2012.


Falta, Wilhelm. Endocrine Diseases, Including Their Diagnosis and Treatment. Philadelphia: P. Blakiston's Sons, 1923.


Flavell, C. M. “Women and Coronary Heart Disease.” Progress in Cardiovascular Nursing 9, no. 4 (Fall 1994): 18–27.


Gardner, Christopher D., Alexandre Kiazand, Sofiya Alhassan, et al. “Comparison of the Atkins, Zone, Ornish, and LEARN Diets for Change in Weight and Related Risk Factors


Gordon, Tavia, William P. Castelli, Marthana C. Hjortland, William B. Kannel, and Thomas R. Dawber. “High Density Lipoprotein as a Protective Factor Against Coronary Heart


Han, In Hwa, and A. Saari Csallany. “Formation of Toxic $\alpha$-$\beta$-Unsaturated 4-Hydroxy-Aldehydes in Thermally Oxidized Fatty Acid Methyl Esters.” *Journal of the American Oil Chemists’ Society* 86, no. 3 (March 2009): 253–260.


**BIBLIOGRAPHY**


Lamarche, Benoit, A. Tchernof, Sital Moorjani, et al. “Small, Dense Low-Density Lipoprotein Particles as a Predictor of the Risk of Ischemic Heart Disease in Men: Prospective Results From the Quebec Cardiovascular Study.” *Circulation* 95, no. 1 (January 7, 1997): 69–75.


———. “Epidemiology of Ischaemic Heart Disease in Southern India with Special Reference to Causation.” British Heart Journal 29, no. 6 (November 1967): 895–905.


Mann, George V. “Epidemiology of Coronary Heart Disease.” American Journal of Medicine 23, no. 3 (1957): 463–480.


Mann, George V., Georgiana Pearson, Tavia Gordon, Thomas R. Dawber, Lorna Lyell, and Dewey Shurtleff. “Diet and Cardiovascular Disease in the Framingham Study I. Mea-


———. “Obesity: Overnutrition or Disease of Metabolism?” *American Journal of Digestive Diseases* 20, no. 9 (September 1953): 268–274.


Dietary Modification Trial.” *Journal of the American Medical Association* 295, no. 6 (February 8, 2006): 629–642.


———. Presentation at a conference hosted by the Institute of Shortening and Edible Oils, Las Vegas, August 2007.


Rony, H. R. *Obesity and Leanness.* Philadelphia: Lea and Febiger, 1940.


———. “When the Eskimo Comes to Town.” *Nutrition Today* 6, no. 6 (November–December 1971): 8–16.


Seltzer, Carl C. “The Framingham Heart Study Shows No Increases in Coronary Heart Disease Rates from Cholesterol Values of 205–264 mg/dL.” Giornale Italiano di Cardiologia (Padua) 21, no. 6 (1991): 683.


Young, Shun-Chieh, Louis W. Chang, Hui-Ling Lee, Lung-Hung Tsai, Yin-Chang Liu, and Pinpin Lin. “DNA Damages Induced by Trans, Trans-2, 4-Decadienal (tt-DDE), a


