Insights on Moss and Warner books

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Dear Roger, Mario and Joanne,
It was a pleasure to see you earlier this week and I appreciate your willingness to be available for any media interview requests that we may receive. As background information, I have attached the book summaries of the Salt, Sugar, Fat by Michael Moss and Pandora's Lunchbox by Melanie Warner, as well as general talking points. We will appreciate you sharing any specific talking points about specific food science issues that are addressed in the books. Also, we have included below the link to our current IFIC Food Insight newsletter which contains the book reviews, our upcoming blog schedule and current known media coverage.

IFIC Foundation Book Reviews Now Posted on FoodInsight.org

IFIC Foundation Food Insight newsletter subscribers received the February 2013 edition via email Thursday evening. The newsletter contains book reviews of the Moss, Warner, and Payn-Knoper books. If you are not a current subscriber, you can access the Food Insight newsletter and book reviews here: http://www.foodinsight.org/Newsletter.aspx <http://www.foodinsight.org/Newsletter.aspx>

IFIC Foundation Blogs Featuring Book Reviews

The book reviews are being repurposed as blogs on foodinsight.org. The current schedule is:

1. Moss "Salt, Sugar, Fat" Review Blog: Fri., Feb. 22, 2013 (afternoon)
2. Warner "Pandora's Lunchbox" Review Blog : Mon., Feb. 25, 2013
3. Payn-Knoper "No More Food Fights" Review Blog: Wed., Feb. 26, 2013

You can access our blogs on the right side of our home page: www.foodinsight.org <http://www.foodinsight.org>.

We also will promote these efforts through Twitter and Facebook.

Media Appearances

Michael Moss – Tuesday, Feb. 26 National Public Radio – Fresh Air and Dr. Oz show

Melanie Warner- Thursday, Feb. 28 National Public Radio – Diane Rehm Show

We will keep you apprised of additional details and please feel free to reach out to us at any time.

Thanks again!

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Attachment #1

Salt Sugar Fat - IFIC Summary [2].pdf

Original view

11 pages (displayed on pages 4 to 14)

"Salt Sugar Fat: How The Food Giants Hooked Us"

by Michael Moss

[FOR INTERNAL USE ONLY]

An Overview by the International Food Information Council

PROLOGUE: *"The Company Jewels"*

Section Theme: Processed food companies manipulate the ingredients sugar, salt and fat in very sophisticated ways that fosters overconsumption and has resulted in high rates of obesity in adults and children, a problem they have known about and ignored for many years.

Overview: Moss begins his 20-page prologue by detailing an April 8, 1999 meeting of 11 food company CEOs in Minneapolis, hosted by Pillsbury and organized by ILSI N.A. In an extensive presentation, Kraft Vice President Michael Mudd warned the CEOs about the problem of obesity, urged them to admit to a degree of culpability and become actively involved in working to find solutions in order to defuse building criticism from public health experts. "We cannot pretend food isn't part of the obesity problem," Mudd said. "No credible expert will attribute the rise in obesity solely to decreased physical activity."

Moss says that the idea of collectively down-formulating their products to ease their effects on Americans' health was rejected at the time by all the companies except Kraft.

Moss goes on to describe his access to confidential industry records, and says they show exactly how "deliberate and calculating" the industry is in manipulating sugar, salt and fat to find the "bliss point," or the precise amount of ingredients that "will send consumers over the moon." Additionally, he says, powerful marketing departments add to the industry's ability to shape America's eating habits.

Moss ends the prologue with this statement: "Inevitably, the manufacturers of processed food argue that they allowed us to become the people we want to be, fast and busy, no longer slaves to the stove. But in their hands, the salt, sugar, and fat they have used to propel this social transformation are not nutrients as much as weapons, weapons they deploy, certainly, to defeat their competitors but also to keep us coming back for more."

[Back to top]

PART ONE: SUGAR

Section Theme: Our bodies are hard-wired for sweets. Food manufacturers have scientists who specialize in studying the senses and use that knowledge to put sugar to work for them in countless ways. Sugar not only makes the taste of food and drink irresistible, but it can also be used to make manufacturing miracles possible, making it the go to ingredient in processed foods.

Overview: In Part One, Moss weaves the history of the processed foods industry with the growing body of knowledge about sugar's uses, its role in meeting consumer preferences and competition for market share.

Chapter 1: "Exploiting the Biology of the Child"

In *"Exploiting the Biology of the Child,"* Moss visits Monell Chemical Senses Center in Philadelphia, one of the world's foremost authorities on taste and "where the sweet receptor protein was discovered." Moss notes that the center receives much of its funding from the food industry, which is a point of controversy among some of its scientists. Moss interviews several researchers about the innate craving for sweets, especially among children and details other research that he concludes indicts soda in the obesity epidemic, although he adds the research is still incomplete.

Chapter 2: "How Do You Get People to Crave?"

"How Do You Get People to Crave?" introduces readers to industry pioneer Howard Moskowitz, who for more than three decades, worked to turn losers into hits. The chapter details the process of consumer analysis and mathematical modeling Moskowitz employed in 1994 to launch Cherry Vanilla Dr. Pepper, a big hit. The chapter also details the investigation Moskowitz undertook in 2001 to identify factors that made people crave certain foods. Moss states that Moskowitz found people are driven to eat by other than hunger. "Some of these are emotional needs, while others reflect the pillars of processed food: first and foremost, taste, followed by aroma, appearance and texture."

Chapter 3: "Convenience with a Capital 'C'"

"Convenience with a Capital 'C'" introduces another industry pioneer, Al Clausi, who turned Jell-O instant pudding and Tang into national hits for General Foods. Moss features the development of instant Jell-O pudding as an industry turning point. General Foods, in the face of stiff competition, turned to chemical additives rather than sticking to its policy of using only natural ingredients in developing the product. The chapter also profiles General Foods' CEO Charles Mortimer, who urged his product developers to strive, above all, for "convenience" for the modern American homemaker, which led to a number of breakfast foods in additional to the company's array of sugar sweetened cereals. Moss also spends several pages detailing how food companies undermined cooking from scratch and traditional home economics by developing its own army of home economics teachers and through the creation of the wildly popular Betty Crocker, all who preached the gospel of "convenience."

Chapter 4: "Is It Cereal or Candy?"

"Is It Cereal or Candy?" is a history of the development of and competition among breakfast cereal companies Kellogg, Post, and General Mills. "By 1970, the Big Three controlled 85 percent of the cereal market." Moss says that in 1975 sugar began to become a concern to consumers due to publicity generated by crusading dentist Ira Shannon and Harvard Professor of Nutrition Jean Mayer. Moss details the FTC's unsuccessful attempt in 1977 to ban sugary foods from being advertised to children and the industry's effort to prevent it, as well as what he considers marketing excesses by several companies trying to claim positive attributes for their sugary cereals.

Chapter 5: "I Want to See a Lot of Body Bags"

"I Want to See a Lot of Body Bags" chronicles the life, professional success and disenchantment of Coca-Cola marketing executive Jeffrey Dunn, who was obviously interviewed extensively for the book. Through Dunn's prism, the chapter details the marketing strategies of the company and its competition with rival Pepsi, which Moss said increased sales for both companies. Moss suggests that Coca-Cola's strategy was to increase per capita consumption, which they did so effectively, like rival Pepsi, by targeting young people who frequent convenience stores the most.

Chapter 6: "A Burst of Fruity Aroma"

A "Burst of Fruity Aroma" highlights the marketing expertise of Philip Morris and how it was applied to products of General Foods and Kraft, which the tobacco giant had acquired. Former Philip Morris CEO Geoffrey Bible is interviewed and Moss notes that Bible, like Dunn, was a careful eater "avoiding too much of the kind of foods their companies sold." Bible explains how Kool-Aid, which once dominated the powdered soft drink category, was losing market share quickly. To regain lost turf, the Kool-Aid team invented their own squeezable bottle and to appeal to moms, a splash of real fruit juice was added. Dunn said the same marketing strategy worked well for the Tang Fruit Box, which was marketed as healthy and fun. Moss says marketers went a step further with Kool-Aid, adding "enticing imitation aromas" so that when the bottles were opened, they emitted "powerful fruity smells." Moss concludes the chapter by comparing the sweetness of pure fructose to common table sugar and contends that once it was isolated, pure fructose "started turning up in a whole range of foods, from yogurt to ice cream, cookies to breads."

[Back to top]

PART TWO: FAT

Section Theme: The "bliss point" of food is exploited by food manufacturers for profit which places food industry at direct odds with the interests of public health.

Overview: In Part Two, Moss explains in great detail how the food industry formulates, produces and markets its foods with careful precision and exerting influence on key government agencies (e.g., USDA) knowing full well the role their products play in the declining health of Americans.

Chapter 7: "That Gooey, Sticky Mouthfeel"

This chapter explores the role fats play in taste preferences, noting that it is as powerful an influence as sugar but less obvious. Like sugar, fat stimulates the areas of the brain associated with hunger and thirst, but also those areas that indicate pleasure. Moss details food industry research that showed adding fats to products made them more attractive to consumers, which he connects to industry manipulation of the public in their formulation of products.

To reduce the fat content of products proves difficult, as it affects the taste and the texture. The reformulation could increase production costs beyond the price point consumers were willing to pay for a more healthful product, thus either causing the company to lose money or stopping production of the more healthful product. While people may be inclined to want to eat more healthfully, there is a point where people compromise: time constraints, cost, etc...

Moss notes that "Fat's public image of fat has always been horrid." He compares the attractive language used to describe sweet products (honeyed, sugarcoated, candied) to the unappealing language associated with fats (greasy, oily, heavy). The "beauty" of fat is that it can be "hidden" in foods. The chapter explains that, while consumers do not like the sight of fat in the food, they like the feel it provides—the "mouthfeel."

While sugar has a certain "bliss point," where people find it at the peak of enjoyment, it also has a "break point," where people find any additional sugar unappealing. Fats do not appear to have a "break point," based on research by Dr. Adam Drewnowski discussed in the chapter. The research also indicates that a combination of fats and sugar is even more appealing and palatable than either nutrient on their own. The food industry used this research to add fat to food products considered to be "sugary" or "sweet" to make them more appealing, without breaching the "break point" of sugar. It also added considerable calories to these products.

Chapter 8: "Liquid Gold"

This chapter explores the proliferation of cheese in the American diet, which Moss sets out as a conspiracy between the food industry, the dairy industry and the US government. He also differentiates between what he considers "real cheese" and the "cheese product" that has been developed by scientists and the food industry. Americans eat between 27-33 pounds of cheese per year—tripled since 1970. Moss explains that the food and dairy industries, along with the USDA, worked to change the way Americans eat cheese, making it an ingredient rather than a food.

Moss details the beginnings of "processed cheese," going back to James Lewis Kraft in the early 1900s. He notes that "Traditional cheese makers were appalled" and that they wanted to have the cheese labeled "embalmed" or "imitation." This is where he begins connecting the USDA into the story of "processed cheese," as they settled on the labels of "American cheese food" and "American cheese product." The chapter goes on to explain the increasing role of science and technology, such as using sodium phosphate and other enzymes, in modifying processed cheese to lower production costs and shorten the process.

Once the rapid production of cheese was mastered by the food industry, Moss explains how the food

and dairy industries and the USDA conspired to get Americans to eat more cheese. Milk and other dairy products did not have the best image in the mid-1980s because people began to be concerned with fat and its role in heart health. The dairy industry started promoting low-fat milk, which gained popularity. Cows began to be bred and stimulated to produce more milk, so the milk could be "skimmed" to make low-fat milk. The milk fat waste was used in the production of processed cheese. The USDA subsidized the dairy industry, so there was a surplus of dairy products, which Moss says had "huge implications on obesity." Moss states that "The fat might well show up when they next step on the scale."

Despite milk being recognized as "fatty" by Americans, cheese was not identified by people as a "fatty food." Dr. Drewnowski's research also indicated that people are receptive to cheese (because it contains fat without appearing "fatty") and find that they like foods more that have cheese as an ingredient. The food industry was able to produce cheese products and began by marketing them to people who ate a lot of cheese, or "heavy cheese users." Cheese became pervasive in food products, increasing the consumers' enjoyment of food without them being aware of the increased saturated fat and calorie content. Moss concludes the chapter by stating, "hiding the fat in processed foods would become an industry theme, one that would involve far more than just cheese."

Chapter 9: "Lunchtime Is All Yours"

This chapter explores the research behind and development of Lunchables—a product developed to increase the sales of bologna and other red meat products during a time when consumers were becoming mindful and aware of its saturated fat and salt content. Moss details the process Oscar Mayer employees went through to come up with and develop the product, noting that the first year resulted in a net financial loss before the production line was streamlined and the product broke industry records.

Consumer research and focus groups were done to see what Americans needed and what they wanted: time and convenience were pressing issues, which appeared to outweigh concern over fat or salt. Ultimately, the Lunchables were developed with familiar contents: cheese, bologna, and crackers. These familiar contents in a new package proved to strike a chord with Americans. As sales increased, Oscar Mayer worked to continue to innovate the product by "turning to one of the cardinal rules in processed food: When in doubt, add sugar." Desserts were added to the Lunchables tray. Additional lines were developed to expand the target audiences.

Moss points out kids are the ultimate audience for Lunchables, highlighting that the product "exacerbated" health concerns while also "exposing" kids to "the thrills of fast food." Eventually, Oscar Mayer began promoting Lunchables directly to kids, capitalizing on kids' and adolescents' desire to have independence and exert control in their own lives. For Lunchables, Moss states "it was the fun, the cool, and most of all, the feeling of power it brought to [kids'] lives."

Another theme in this chapter is that the food industry will develop and produce food products as dictated by the public. People dictate what is sold by what they buy. Moss states that because "everybody eats" and they do not need to create the basic demand, the food industry looked for ways to "excavate" consumers' unmet needs. However, the chapter emphasizes that the processed foods

that are developed by food industry scientists are generally not eaten by them or by the company executives. Moss states that "There is a class issue at work in processed foods." This may cause the products to not have the best nutritional profile, but they meet the needs and tastes of the target audiences.

The chapter concludes with a former food industry scientist holding the food industry accountable for the current issue with obesity, and also sharing the blame with the federal government. This is the same scientist who had played an integral role in the conceptualization, development and promotion of Lunchables. The chapter ends implying the individual had an about-face where he now recognizes the role of the food industry in the obesity issue and pushes for changes in practices to improve the situation.

Chapter 10: "The Message the Government Conveys"

The USDA, "The People's Department," and their culpability in the declining health of America, is the focal point of chapter 10. The USDA is "charged with safeguarding" the health of Americans while simultaneously feeling "obligated to placate and nurture" the industry of food manufacturing. At the crux of the USDA's dilemma, is the "pillar of processed foods: fat."

Moss examines the evolution of the Dairy and Beef Industries, specifically how the two have influenced US Dietary Guidelines, raised revenue (e.g., >$80 million/year and $2 billion in total for "selling America on more beef") through government created marketing programs ("checkoffs") and ultimately joined forces to increase supply, demand and consumption of their products, thus supplying "the type of fat doctors worry about" (saturated fat) in mass quantities to American consumers. The vehicle used to deliver saturated fat is cheese and red meat and according to Moss, the USDA "has joined industry as a full partner in the most urgent mission of all: cajoling the people to eat more." Moss focuses more on the beef industry than dairy with specific attention paid to: lean finely textured beef, or "pink slime"; the beef industry's extensive marketing efforts to soften the blow of a World Cancer Research Fund and American Institute for Cancer Research report offering "convincing" evidence that red and processed meats increased the risk for colon cancer;

In reporting on the Dietary Guidelines process, Moss takes issue with the official report not explicitly recommending that meat and cheese consumption be reduced. Because federal data show Americans to be eating "chronically high" levels of saturated fat (especially children), the "panel" said "everyone should strive to reduce their intake to 7 percent," and the "dominance of cheese and meat as the biggest sources," it "would seem to lead to a logical conclusion: We should stop eating so much cheese and meat." In fact, just the opposite occurred in the guidelines as cheese was included among foods recommended to "eat more of, not less" and that "meat is touted throughout the report with added assurance that neither it, nor milk products, has been specifically linked to obesity." Moss notes that Walter Willett and Margo Wootan also share his desire to see Dietary Guidelines single out specific foods or products known to be a contributor to poor health. A portion of this chapter describes the role of GMA in the DGAC nominations process (7 of 13 members were noted to have been nominated by GMA) and their submitted comments to the DGAC Report.

Chapter 11: "No Sugar, No Fat, No Sales"

How good should food taste? In an era of rising obesity, to what extent should food be researched, formulated, produced and marketed in the effort to be as tasty, enticing and alluring as possible? These are just some of the questions pondered in this chapter as detailed accounts of efforts made by executives at Philip Morris and Kraft (he visited the company in 2011 and interviewed former employees) to expand globally while balancing the implementation of new practices with the realities and expectations of Wall Street.

Moss documents internal Kraft discussions that began to address the concerns over rising obesity in the late 1990's. The company brought together 10 external health and marketing experts to help develop an appropriate response to the challenge of obesity.

Around the same time that Kraft was convening the expert panel, Wal-Mart, known for being a low-price retailer, began selling food. Food manufacturers eagerly fought for space on Wal-Mart's shelves which seemed to be at odds with the intent of the panel. Moss implies that Wal-Mart's emergence in the food marketplace created competition to create lower priced of food, thus increasing the availability and acceptance of processed food among consumers.

As a result of the expert panel, Kraft began taking steps to address labeling (discussing front of package labeling and implementing second column NFP information displaying whole package calorie content) and marketing strategies, but realized the real issue was the "fundamental nature" of processed foods. The creation of 100-calorie packages to seem "less threatening" is discussed and portrayed as working "a little too well for Kraft" resulting in some of their products being left with "less fat—and less allure." As a response, Kraft began acquiring multiple smaller food companies and producing multiple varieties of certain products (e.g., Oreos) and marketing them worldwide (e.g., India) to focus on "a strategy for higher profits that the analysts could only cheer: Kraft's snacks taking the world by storm."

According to Moss, "the idea of a food giant exploring the question of how to get people to eat less was astonishing" and he details Philip Morris' marketing history and describes how executives applied similar practices and learnings to food. Among the learnings was a 1999 strategy paper titled, "Lessons from the Tobacco Wars" which forecasted potential troubles for food companies. Additionally, executives at Philip Morris warned of the threat that obesity would pose to the food industry.

This chapter ends with the assertion that cheese and beef became "powerhouse ingredients in processed foods" because when fat and added sugar are paired, "the brakes on overeating come right off." Dr. Adam Drewnowski is cited for his research on "measuring the effects that fat has on the brain." The implication here is that food manufacturers easily and freely manipulate products to contain just the right amount, "bliss point," of each nutrient which has led to the overconsumption of processed foods.

[Back to top]

PART THREE: SALT

Section Theme: The food industry recognizes the health implications of its products but is willing to put public at risk for monetary benefit. In fact over the years, scientists have teamed with marketers to devise ways to increase demand for their product while diverting regulatory attention away from pursuing public health.

Overview: In Part Three, it is claimed that the consumer is at the mercy of the corporate food empire which is at all times unscrupulous and extremely successful.

Chapter 12: "People Love Salt"

In the 1980s high blood pressure became a major health concern. Causes remained unknown but key factors included obesity, smoking, and diabetes. Sodium in salt was the main risk factor, at the time the US public was consuming 10-20x amount needed.

AHA sold seasoning mixture as an alternative to salt shaker. The author however concludes this was not sufficient to lower sodium intake. With minimal evidence, the author concludes that the problem is excess sodium in the food supply. He cites *JACN 1991* Monell experiment, indicating overwhelming amount of salt in diet came from processed foods at the supermarket. The author met with Monell's salt authority Paul Breslin. Breslin suggests salt makes people feel good but the need is small.

Evolutionary need for salt related to when animals lived in salt water, salt was plentiful. Breslin links feelings for salt to those of drugs of abuse.

A study in 1991 by Stephen Woods of University of Cincinnati, highlighted the metabolic effect and pathways used by the body for food and narcotics are similar. Salt is associated with other forms of addiction. Food industry terms this "crave-able, likeable or snack-able". Author compares Howard Moskowitz book on "Crave It" indicating people are drawn to food for reasons other than hunger. Food industry is liable for the "manner that people crave salt" rather than the craving itself. Food manufacturers have been creating a craving where none existed. Babies don't like taste of salt. Babies fed salty or starchy food early in life enjoy salty taste more as kids.

Salt Consortium, formed after government lowered sodium recommendations in 2010. Kraft named as member, assisted by Monell to reduce salt in the food supply. Food industry seeks way to replace salt which is valuable in improving taste of WOF (warmed over food) as well as adding sodium in other forms than salt. Kellogg named in letter sent to USDA to plead for continued use of salt and sodium.

Gary Beauchamp experiment shows that people can become more sensitive to salt if they reduce their intake.

Chapter 13: "The Same Great Salty Taste Your Customers Crave"

Author visits Cargill in Hopkins, Minnesota in April 2012. Salt is processed here to maximize its bliss effect or power in food. Salt is processed in Alberger process to produce maximum pleasure or "flavor burst" and refined in different ways for different purposes for the food industry. Cargill is privately held and dominates the food supplier field. The tide turned against salt intake in 2005 when DGAC

recommended reducing salt intake and FSA (2003) in England made food companies accountable for amount of salt in products. In 2005 CSPI released report: "Salt the Forgotten Killer...The FDA's Failure to Protect the Public's Health". Cargill replaced 1/3 of sodium with Potassium Chloride. Food companies like Kellogg have been struggling to make their products taste acceptable to public. Kraft developed other product with lower sodium levels which had weak public acceptance. In NYC Mayor Bloomberg joined the outcry against salt and threatened federal restrictions if industry didn't voluntarily reduce salt in processed foods. Industries pledged to reduce salt in a % of product line but not all products. Campbell Soup did not initially pledge so author visited Campbell. Substituting fresh herbs for salt increased Campbell's soup costs which caused drop in sales so Campbell returned some salt to product line.

Chapter 14: "I Feel So Sorry for the Public"

Discussion centers on presentation by Finnish professor of pharmacology's presentation and subsequent meeting with Robert Lin, chief scientist/corporate executive from Frito-Lay. At heart of discussion was corporate interest and actions to keep salt from being regulated versus public health concerns regarding salt's relation to high blood pressure and heart disease. Scientist felt guilt over company's attempts to defend salt content by using experts to show the dangers of too little salt, the inconsistencies of connections of salt intake with high blood pressure and possible cures to counter high salt intake. Later interviews with a scientist who no longer works for Frito-Lay, showed attempt to distract attention from salt and blood pressure connection by focus on growing concern over obesity and calories. Discussion included Lin's regrets and acknowledgement that "people get addicted to salt". The author goes on to discuss Lin's professional history and experiments at Frito-Lay. One in particular where monkeys were fed a diet of potato chips 3 times daily for 5 years (2 generations) to see if they died any faster than monkeys fed a high saturated fat diet. The results showed no greater risk of eating potato chips.

Out of fear of advocacy groups like CSPI, Lin worked with colleagues on a "salt strategy" to reduce salt in Frito-Lay products. During 1979 FDA hearings on salt regulation, Frito-Lay's marketing director, a cardiologist and a cancer researcher testified about the inconsistent links in salt and blood pressure research. Research at Frito-Lay continued looking into the benefits of substituting calcium for sodium in salted products but was not successful.

Frito-Lay hired Monell's Dwight Riskey who helped the company to understand that baby boomers were eating more of their favorite foods as they got older by using cohort data. This was consistent with new US eating patterns which included snacking more and fewer meals. PepsiCo's marketing direction now focused on snacking options or extensions. PepsiCo pledged to reduce sodium in their salty snack foods by 25% while they marketed heavily to the new millennial generation who, facing a bad job market, required snacks to include entertainment. These products were promoted heavily during entertainment and sport events and contained added flavors and aromas of fast foods while marketing less salt to baby boomers. New marketing ploys included smaller packages, toasted rather than fried and encouraging chips as meal accompaniments, with soup, with sandwiches, etc. rather than as a snack to reduce guilt about snacking.

EPILOGUE: *"We're Hooked on Inexpensive Food"*

Author visited Nestle in Lausanne, Switzerland to see their innovative work. Innovations such as developing a means to improve the distribution of fat droplets in ice cream in order to fool people into thinking it is fattier than it really is or trying to keep people from noticing when saturated fat is replaced with healthier oils. (positive applications) Disappointments included using fiber to cure overeating and foods that make you lose weight. Basically, the author feels food scientists, no matter how hard they work, will not be able to change the food supply enough to cure our health problems. After visiting the manufacturing plant where Nestle produced Hot Pockets he discusses the dichotomy of also owning pharmaceutical producer Novartis. This collaboration he speculates is the future of drug-like foods or food-like drugs to treat overeating, diabetes, obesity, and diseases of excess at a lower cost than drug companies charge for drugs.

In summary, Moss suggests that experts agree that food companies who produce foods that undermine our health won't give up without a fight. Salt, sugar and fat are the foundation of processed food and food companies decide how much of salt, sugar and fat they want to use to achieve maximum allure. The business mode of being obligated to shareholders and competition in the marketplace keeps the industry from making needed change. In addition the author uses example of Jeffrey Dunn at Coca-Cola who "knew" that soda was the leading cause of obesity but denied the correlation. The fact that executives of food companies that Moss interviewed who no longer will eat the products produced by the companies they worked for in the past is seen as the smoking gun indicting the entire food industry. Psychologists who work with addictive behaviors suggest that the best answer is to avoid the processed foods that have become "sirens of overeating" but Moss suggests that we are too rushed or demanding to "put a decent dinner on the table". An example of the need for more government regulation of the food industry is supported by former CEO of Philip Morris; Geoffrey Bible who thinks it will make a more level playing field. The big problem is closing the price gap between processed and fresh foods to make them competitive. Moss's proposed solution to manipulation by the food industry is to provide better understanding of how foods are packaged and engineered to excite, providing more will power to resist their call when passing them in a supermarket aisle.

[Back to top]

**This summary describes the content of "Salt Sugar Fat" and is provided for informational purposes only. The above does not necessarily reflect the views or opinions of the International Food Information Council (IFIC) or the IFIC Foundation.*

Author Information

To view Michael Moss' profile and New York Times article archive, click here.

Michael Moss is an investigative reporter with The New York Times, having joined the paper in 2000. In 2010, he won the Pulitzer Prize for Explanatory Reporting for his investigation of the dangers of contaminated meat. Mr. Moss's hamburger article was the centerpiece of a body of work focused on surprising and troubling holes in the system to keep food safe.

Before coming to The Times, Mr. Moss was a reporter for The Wall Street Journal, New York Newsday, The Atlanta Journal-Constitution, The Daily Sentinel in Grand Junction, Colo., and the High Country News in Lander, Wyo.

He was a finalist for a Pulitzer Prize in 2006 for his reporting on the lack of protective armor for soldiers in Iraq, and in 1999 for a team effort on Wall Street's emerging influence in the nursing home industry. Mr. Moss received an Overseas Press Club citation in 2006 for stories on the faulty justice system for American-held detainees in Iraq.

Mr. Moss is the author of a book about the processed food industry, "Salt Sugar Fat: How the Food Giants Hooked Us," to be published by Random House in March 2013, and is the author of "Palace Coup: The Inside Story of Harry and Leona Helmsley," a Doubleday imprint. He has been an adjunct professor at the Columbia University Graduate School of Journalism and has had fellowships with the German Marshall Fund and the Gannett Center for Media Studies. In 1983 he covered an expedition up the West Ridge of Mount Everest in Nepal.

Born in Eureka, Calif., Mr. Moss attended San Francisco State University. He lives in Brooklyn with his wife, Eve Heyn, a writer, and their two boys.

[Back to top]

Attachment #2

IFIC Talking Points on Modern Food Production - 02-21-13.pdf

Original view

3 pages (displayed on pages 16 to 18)

IFIC
International
Food
Information
Council

General Talking Points on Modern Food Production
February 21, 2013

1. **Technology/Safety/Consumer Demand/Affordability**
    a. Consumers demand and enjoy a food supply that's flavorful, nutritious, safe, convenient, colorful and affordable. Advances in science and technology make this possible.
    b. The role of nutrients in food and beverage products serve many functional roles including maintaining or improving safety, freshness, affordability, nutritional value, taste, texture and appearance.
    c. Every food we eat—even those that are naturally occurring—is made up of chemical compounds that determine flavor, color, texture and nutrient value.
    d. The application of science and technology to food has resulted in an abundant, nutritious, convenient, safe and affordable food supply. In fact, Americans spend less money on food (as % of disposable income) than any other country in the world.
    e. Processing foods often makes them safer. Examples include pasteurization, canning and freezing.
2. **Year-Round Access to Your Favorite Foods**
    Advancements in science and technology in food production make it possible to enjoy your favorite foods all year long.
3. **Time-Saving, Nutritious Products**
    Food processing makes it possible to have time-saving, nutritious products that help make meal preparation easy for today's busy families.
4. **Addressing Food Preferences and Taste**
    a. Foods are only beneficial to health if eaten—and are more likely to be eaten if they meet consumer preferences.
    b. Foods that meet consumer preferences for taste, nutrition, affordability and convenience offer the most flexibility in building a healthful diet and lifestyle.
5. **Government Oversight**
    a. Many U.S., state, and local government agencies oversee the safety and nutritional value of our food supply.
    b. Whether you choose local, organic, bottled, canned, frozen, or freeze-dried, you can be assured that your food has met strict US government standards.
6. **Consumer Choice in the Food Supply**
    The American food supply offers an abundance of choice to the consumer. Our food supply provides nutrition, safety and variety—many of the foods often critiqued in popular books are not intended to be consumed on a frequent basis, but to be enjoyed occasionally and in moderation.
7. **Food Sustainability/Population Demands**
    The world's population is expected to reach 9 billion by the year 2050 (70% of which is predicted to be urban), making it necessary to use all available options to efficiently and sustainably supply the abundance of safe, high-quality foods we need and expect.

8. **Defining Processed Foods**
    a. Most of the foods we eat are processed foods. This includes most foods available in grocery stores including foods labeled as natural, organic, or fortified.
    b. All processed foods are not the same—each offers a different set of benefits.
        i. Some foods require little processing or production.
        ii. Some foods are processed to help preserve and enhance nutrients and freshness of foods at their peak.
        iii. Some food combines ingredients such as sweeteners, spices, oils, flavors, colors, and preservatives to improve safety and taste and/or add visual appeal.
        iv. Some foods are "ready-to-eat" and thus require minimal or no preparation.
        v. Some foods are packaged to stay fresh and save time.
9. **Obesity/Nutrition**

    Most nutrition experts agree that no one type of food causes obesity—obesity results from consuming more calories than the body uses, in function or physical activity, regardless of the food source.

IFIC Foundation Food & Health Survey Data Points and Key Messages

- The IFIC Foundation *Food & Health Survey* has consistently shown that taste has the greatest impact on an individual's decision to buy foods or beverages (with 87% reporting it has a great impact) over price (73%), healthfulness (61%), and convenience (53%).

- According to the 2012 IFIC Foundation *Food & Health Survey*, Americans recognize the connections between foods and nutrients to weight and health outcomes—over 50% consider carbohydrates, sugars and/or fats when making food/beverage purchases to manage their weight and/or reduce risk/prevent health conditions.

    - Consider fat content in foods to help maintain a healthy weight: 65%
      Consider fat content in foods to reduce risk of heart disease: 61%
      Consider fat content in foods to prevent a future health condition: 56%

    - Consider sugar/carbohydrate content in foods to help maintain a healthy weight: 62%
      Consider sugar/carbohydrate content in foods to prevent a future health condition: 54%
      Consider sugar/carbohydrate content to manage an existing health condition: 23%

- The 2012 IFIC Foundation *Food & Health Survey* showed that nearly all Americans are trying to improve at least one aspect of their eating habits by trying to eat more fruits and vegetables (87%), drinking low and no calorie beverages (78%) and cutting back on foods higher in solid fats, added sugars and salt (76%).

    - They are also trying to eat foods with more whole grains (75%), to consume smaller portions (73%) and to balance calories to manage their weight (60%).

- The majority of Americans believe that some processed foods can provide affordable, nutritious options, according to the 2012 *Food & Health Survey* (59%).
    - They also believe that processed foods help provide a variety of food choices year round (72%) and that they are a convenient way to put food on the table (70%).
- Seventy-eight percent of Americans are somewhat (58%) or very (20%) confident in the safety of the U.S. food supply, according to the 2012 *Food & Health Survey*.

Attachment #3

Pandoras Lunchbox - IFIC Summary [2].pdf

Original view

16 pages (displayed on pages 20 to 35)

"Pandora's Lunchbox: How Processed Food Took Over the American Meal"

by Melanie Warner

[FOR INTERNAL USE ONLY]

An Overview by the International Food Information Council

INTRODUCTION

Overall Message: The complex modes of food production, known as food science have led society into a new way of eating-processed foods. The plethora of prefabbed, precooked and portable food that has occurred over the past decades represents the "most dramatic nutritional shift in human history" and our bodies are not designed to digest it. A processed food is described as "something that could not be made, with the same ingredients, in a home kitchen....your kitchen". According to the author, the book was written with the "core belief that it's important to understand what we are eating."

Examples Used: The review of numerous food labels revealing products that no one would use in their home kitchens as well as stories about foods that maintain their "shelf life" long after the expiration date.

Major Points

The study of processed foods and the development of the book occurred from the original assignment of reviewing food labels and expiration dates. The author cites a story about guacamole dip still being "edible" and causing no ill side effects to her mother after a nine month stay in her refrigerator as a catalyst to look further into the world of processed foods.

Prior to this investigation, the author cites that she had "no idea how technical our food production had become."

Pasteurized milk, frozen and canned vegetables, pre-packaged fresh vegetables, aged cheese and frozen ground beef patties are listed as examples of food that is NOT processed.

Seventy percent of today's US calories come from the ultra-processed food, citing a study conducted by Brazilian nutrition scientist, Carlos Montiero.

The author cites her principles of "eating well" are based on her mother's principles—avoid "gooped-up" food and consume things that would be recognized as food which her mother had growing up in the thirties in Nova Scotia.

[Back to top]

Chapter 1: Weird Science

Overall Message: Food science can be a noble profession if scientists are committed to finding ways to use more nutritious ingredients and engineer out or reduce salt, sugar and fat. But the question remains if that is possible as it was technology that allowed the food industry to "get us in this mess in the first place."

Example Used: The recap of interviews of participants and booth visits at the 2011 IFT Convention as well as a visit to the Purdue University Food Science Department.

Major Points

There is a lot to eat at an IFT convention but not the standard items normally found at a food or culinary show.

"Building food backwards" is cited as an accurate description of the basic blueprint for processed foods.

The author was surprised that despite the IFT conference being about processed foods, no one present referenced their products or work in that context.

The use of starches, flavorings and "white powders" (isolated oat product) to make cheaper products (yogurt, taco meat, frozen meals, fruit-flavored items) are described in detail based on conversations with representatives of the various manufacturers at the IFT Conference.

The author states that a food science career is unfamiliar to most and not many parents would envision their children to be food scientists (unless they were in the profession) and notes it's a relatively "new' discipline, starting in 1918 at the University of Massachusetts at Amherst.

Purdue University is highlighted as one of the top universities in the field of food science with a strong relationship to the food industry and a high success rate of graduate employment. It is noted that the department is female and that the food science field has evolved to be predominately female.

The author does give credit to the food science profession for finding ways to reduce bacteria in food, increase and preserve vitamin content of foods as well as looking at the most effective cooking methods.

The author summarizes conversations with Purdue students by stating that "students, with varying degree of candor, say it's not always easy to endorse wholeheartedly an industry that churns out billions of dollars of products" that would be viewed as unhealthy.

[Back to top]

Chapter 2: The Crusading Chemist

Overall Message: The food industry has a long history of adulterating the food supply as a way to cut costs and gain a competitive edge over honest sellers, forcing them out of business or to use cheaper production methods. This led to the passage of the Federal Meat Inspection Act and Pure Food and Drug Act in 1906.

Examples Used: Poison Squads who taste test adulterated foods, foods like syrup, imported Italian olive oil, strawberry and raspberry jam, tomatoes, meat and bread.

Major Points

This chapter discusses the history of the Agriculture Department's founding chief chemist, Harvey Wiley. Wiley is portrayed as a deeply principled man who came to be seen (by Attorney General George Wickersham) as "an industry-hostile zealot", citing his failure in a 1911 trial to show evidence that the caffeine in Coca-Cola was harmful. After a 29 year career in government, Wiley resigned after being accused of paying expert witnesses in the Coke trial and was eventually cleared in a House of Representatives investigation. Wiley took a new job with *Good Housekeeping* magazine as a health and consumer products expert, establishing the familiar *Good Housekeeping* seal of approval.

The author goes on to show how many of Wiley's rants were prescient, suggesting that Wiley thought sodas should be consumed slowly to allow for thirst to register and reduce intake. He also warned against tobacco as possibly harmful and cancer promoting as well as decrying the bleaching of flour which he believed was "the base of nearly all bad nutrition in the US." Upon leaving Washington DC and returning to his farming roots, Wiley wrote a book in 1915 called "Lure of the Land: Farming after Fifty."

In the FDA headquarters building, also known as The Harvey W. Wiley Federal Building in College Park, Maryland, is an exhibit describing the life and work of the man who paved the way for all food regulation. The author suggests that if Wiley were alive today and visited a supermarket, he would be shocked by the number of food additives in today's food supply that have been declared safe without FDA oversight. Products such as saccharin, from Monsanto Corporation, Karo Corn Syrup, and genetically modified foods without regulatory labels would have disturbed Wiley's sense of justice. Sodium benzoate, named as a preservative in fast foods and sodas such as Mountain Dew, Sprite, Dr. Pepper, Mug Root Beer as well as Heinz 57 Sauce and KFC's ranch dressing, has not been proven to be injurious to health, although implicated in childhood hyperactivity when used in artificial food coloring.

[Back to top]

Chapter 3: The Quest for Eternal Cheese

Overall Message: The use of ultra-processing and technology have shaped Americans' diets and taste preferences by providing foods that are readily available, longer lasting, convenient, but "of inferior nutritional value."

Examples Used: Processed cheese, specifically Kraft Singles

Major Points

The need for and development of "processed cheese" goes back to the early 20th Century when both grocers were losing money and product when cheese would spoil prior to sale. Armed Forces in World War I needed access to food that would last for long periods of time under any condition.

J.L. Kraft heated grated cheddar cheese to kill off bacteria and, after some trial and error, created a resulting product that was rid of the bacteria and "kept indefinitely without spoiling." He patented this processed cheese in June 1916.

This cheese was advertised nationally as more than "just cheese" but as incorporating "modern ideas and modern methods" into cheese making.

The advertising campaign hoped to differentiate the product from the traditional, old-fashioned approach to foods (e.g., the oatmeal bin and the cracker barrel). Americans were interested in the reliability and convenience offered by processed cheese. It is believed that Americans consume seven pounds of cheese, as the product is now called, per person per year.

Traditional cheese makers were displeased with the emergence of processed cheese and called for an investigation in 1925. The Wisconsin Dairy and Food Commissioner found that Kraft and other makers of processed cheese did not meet the required guidelines to consider their products "cheese," urging that these food companies call their products "embalmed cheese." The FDA established subsequent guidelines requiring these products be called "process cheese."

Over the years, additional additives and technologies were explored to improve the making of processed cheese. These additives include sodium phosphate, emulsifying salts, preservatives and acidity regulators.

In the late nineties, Kraft began using the inexpensive milk protein concentrate in their Kraft singles to make a more consistent and less expensive product. In 2002, the FDA informed Kraft Foods that milk protein concentrate cannot be used in processed cheese and that some of the cheeses were in violation of this rule. Kraft changed their description of Kraft Singles from "Pasteurized Processed Cheese Food" to "Pasteurized Processed Cheese Product" to take Singles out of FDA rule.

Many dairy scientists do not consider processed cheese to be cheese, and there are listed differences defined between processed cheese (Kraft Singles) and other cheeses, like Cabot Vermont Cheddar:

- ✓ Kraft Singles have 32% less fat and twice the sodium of Cabot Cheddar (explained as being due to the additives like sodium citrate and sodium phosphate). Sodium-based additives and ingredients are blamed for the high amount of sodium in processed foods, and thus the American diet.
- ✓ Processed cheeses do not have the beneficial bacteria and cultures that aged cheeses have. These gut micobiota are associated with health benefits including digestion, metabolism, weight maintenance and immunity.
- ✓ Processed cheeses have an extremely long life span compared to other cheeses. Sorbic acid is identified as an ingredient of Kraft Singles and is explained to be a powerful antimicrobial and preservative.

The author concludes by stating that despite the convenience and the consistent product provided by processed cheese, it is not "living," nor is it connected to the world of living things.

She notes that human sustenance should connect humans to the natural world, and "lifeless" processed cheese does not.

[Back to top]

Chapter 4: Extruded and Gun Puffed

Overall Message: Modern day food processing "assaults" the nutritional value of food and manufacturers attempt to compensate for this by adding synthetic vitamins, colorings and flavorings. Food processing has led to conditions such as pre-diabetes, metabolic syndrome, and weight gain, and is "related entirely to the kind of food you eat, not the quantity."

Example Used: The pioneering, evolution and fortification of cereal by food industry, specifically the Kellogg Company.

Major Points

1/5 of adults and 1/3 of children eat some type of breakfast cereal every day.

Items from the cereal aisle are the 8th most popular and have the most variety among supermarket products which creates a "land of boundless opportunity." However, the amount of time needed for deliberation among cereal varieties is not needed when contemplating the purchase of "oranges or tomatoes" as "the decision has all but been made for us: navel of Valencia; vine-ripened, cherry, or Roma."

US, Canada, UK and Australia account for 6% of global population, but more than half of all breakfast cereal consumption. Initiatives are underway among food manufacturers to increase cereal consumption among non-English-speaking countries.

Extensive detail and history was given on the evolution of breakfast cereal consumption. Prior to 1900, Americans ate a variety of things for breakfast; from grains to wild game, as well as "considerable amounts of eggs, bacon, sausages, and fried ham." As technology allowed (extrusion and gun-puffing are described) and popularity grew, cereal consumption became the preferred breakfast. The creation and evolution of the Kellogg Company is chronicled.

Increasing the shelf-life of cereal products has resulted in decreased nutritional value of foods. This is the "central paradox of the food processing industry—the fact that nutrition and convenience are sometimes deeply at odds with one another."

Food Companies are less transparent about their processing than they used to be. The author claims that no cereal companies she contacted offered her to tour their factories.

- ✓ "Americans today know far less about how their breakfasts are made than did our less educated ancestors living in far less techno-savvy times."
- ✓ "On the subject of what happens between the picturesque farms and the supermarket aisles, manufacturers are generally mum."

Processing isn't the only thing that degrades nutrition value of cereals. Copious amounts of synthetic vitamins, colorings and flavorings are added back after processing as a "foolproof way to ensure that cereal doesn't taste like the box it's solid in."

Industrial processes like extrusion and gun puffing are detrimental to health as they "dismantle foods to the point where there's not much left for our digestive systems to do." The result of eating "disassembled food" leads to chronic health conditions. According to the author, "Hyperprocessed food requires considerably fewer calories to assimilate" and diminishes levels of "thermogenesis," thus leading to "creeping weight gain" which is "related entirely to the kind of food you eat, not the quantity."

The nutrition label is not helpful to consumers because "rules don't require manufacturers to distinguish the source of the nutrient." A brief overview of the activities of Robert Choate, a senior staff member in

the Nixon White House who is attributed with coining the phrase "empty calories," describes how "the breakfast cereal aisle was transformed into the most heavily fortified real estate in the supermarket."

[Back to top]

Chapter 5: Putting Humpty Dumpty Back Together Again

Overall Message: Synthetic vitamins and minerals are mainly manufactured outside the US and often derived through chemical processing from inedible sources. The fortification of food is a grand scheme by food industry to mask foods usually void of nutrients by adding in vitamins and minerals. In addition, research shows that vitamins and minerals found in fortified foods are not nutritionally equivalent to those naturally found in whole foods.

Example Used: Most of the Vitamin D in American's consumption is derived from grease found in sheep's wool.

Major Points

The majority of the vitamins and minerals are produced in China—"Chinese firms account for roughly half of all global vitamin production...though for some specific varieties it's much higher than that." For example, vitamin D made by Zhejiang Garden Biochemical goes into "nearly all the milk Americans consume (including organic varieties), as well as many of our breakfast cereal, breads, margarine, bars and other dairy products."

The food industry's growth throughout the 20th century was not driven by health or concern for consumers, but to greater sales and profits.

Fortification of flour was a concession from industry that their product was a "nutritional vacuum."

The USDA came out with the guidelines in 2005 and had started making the first claims to eat whole grains.

Companies are adding vitamins/minerals to food products and claiming they are healthier and more natural without clarifying the source of the added nutrients. Example provided is calcium phosphate and calcium caseinate contributing calcium to product but advertising positions it as calcium from milk.

Health claims are what make vitamins a $3 billion worldwide business.

Most of the added vitamins or minerals do not come from foods, they are manufactured – it's too costly and ineffective.

Our vitamins come from China- accounts for about ½ of all global vitamin production.

American vitamin plants have been associated with environmental pollution.

Vitamin companies don't even know how their products are made. Author gives example of Vitamin C being talked about as "fermented corn": Starting with sorbitol (a sugar alcohol) found in fruit, Fermentation begins with bacteria turning the sorbitol into sorbose. The end product is treated with HCL and forms crude ascorbic acid which is filtered, purified and milled into a powder.

Some vitamins come from GM bacteria and inedible products. Vitamin B1 starts with chemicals from coal tar, B3 starts with a waste product from the production of nylon. Vitamin A comes from lemongrass oil compounds mixed with acetone.

Studies show that synthetic vitamins do not protect from disease and often times, increase your chances of getting diseases.

Americans are getting enough nutrients from foods, some even getting too many vitamins (above the upper limit)–cited a study in the Journal of Nutrition.

In Europe, vitamins and minerals inherent in food are the major source of essential nutrients. In America, major source is synthetic vitamins in fortified foods.

Synthetic vitamins and minerals may not be nutritionally equivalent to naturally occurring—we are getting a lot of other naturally occurring nutrients in whole foods that work in tandem to enhance or promote the function of the vitamin/mineral. A 2000 Cornell study is cited.

[Back to top]

Chapter 6: Better Living Through Chemistry

Overall Message: Thousands of ingredients and "ghost additives" are used in food production, thus our food is "doctored." Food manufactures are circumventing government approval processes, declaring their own ingredients safe and using them in foods without notifying the FDA.

Example Used: Subway's bread is the primary case example in this section.

Major Points

Anecdote about the author's mother who ate 9-month old guacamole dip. Author investigated the ingredients that kept it from developing signs of spoilage (mold, separation, etc.). The store brand product was mislabeled and one ingredient on the label was permitted for cosmetic, but not food use (the author noted, however, that the dip did not make her mother sick). This sets up the idea that thousands of ingredients are added to food and that food is "doctored."

The author explains the purposes of food additives, including maintaining appearance, using the example of propylene glycol, "a nontoxic antifreeze chemical" used to prevent honey/sugar glazes from darkening.

One whole section of the chapter focuses on the use of additives, particularly "dough conditioners," to mass-produce bread. Subway is the primary case example in this section. The author issues step by step instructions for mass-production of bread, and implies that the perception consumers have of Subway's "fresh" ingredients is misleading, as the bread alone contains up to 50 ingredients and is baked from frozen at stores.

The author shares a story about another ingredient used in Subway's bread – azodicarbonamide – that caused hazmat alerts to be issued when a truck containing it overturned on a busy Chicago highway.

There is a section on FDA's process for allowing new ingredients and additives to be used in foods and beverages, which implies that FDA is misleading the public as to the level of scrutiny over ingredient use in food, and narrowing in on perceived weaknesses in the process, such as the voluntary GRAS notification process. The author references a Pew Charitable Trusts report that estimates the number of food additives permitted in the food supply.

The author adds that Pew describes 1,000 "ghost additives" that manufacturers have declared safe without notifying FDA, and that the ease of the GRAS notification process has led manufacturers away from the food additive petition process and to declare their own ingredients safe, often without even notifying FDA that it is using it in food.

The author discusses the lack of criteria for "expert" panels that review safety studies, and quotes Tom Neltner at Pew as saying that a number of panels were composed of just one person, and one person served on 185 panels, implying that they may not be credible.

The chapter also touches briefly on food contact substances, of which there are nearly 4,000. The author cites a recall of several brands of name-brand cereal for customer complaints that were linked back to a chemical used in the cereal bag lining called methylnaphthalene.

The author states the current GRAS notification system lacks transparency and published research to support additive safety, and cites lack of follow-up by FDA when concerns were raised in 1972 around cyclamate, sparking the last review of GRAS ingredients, and BHA, which is on CA's Prop 65 and the FDA HHS list of carcinogens (and the use of which the author acknowledges manufacturers have scaled back).

Novozymes uses genetically engineered enzymes in foods. Author seems to imply that naturally sourced enzymes are a more "natural" way to process and change foods. The author does point out that, "quite rightly, that no legal definition exists for what's natural and what's not." This company used to get their enzymes from their natural source – "the pancreas of cattle" – but have figured out how to make the enzymes from GM bacteria.

[Back to top]

Chapter 7: The Joy of Soy

Overall Message: Corporate food complex is altering the US food supply, although possibly with good intentions, but with potentially dangerous impact on human health.

Example Used: US Soy industry

Major Points

Fat consumption has doubled since 1909, 10% of calories from fat in diet now come from chemically processed sources.

Soybeans are relatively new crop in US, originally used for animal feed which caused faster growth.

Supported by government farm subsidies and easy cultivation, soy is a cheap form of oil, found widely in processed foods and vegetable oils which has altered human diets away from whole beans form of soy.

Movement away from animal fats since mid-20th century has led to reversal of fat source from predominately animal to predominately vegetable but sources are extracted, refined, industrial oils.

Author offers comments regarding secrecy at soy processing plants implying concern over technology. Discussion includes use of chemical solvent, hexane, to separate oil from plant.

Discussion continues around partial hydration process to change liquid state into semi solid. Author includes history of *trans* fat making analogies to health consequences that resulted.

Story continues with discussion of finding by Hungarian scientist that found hydroxynonenals in foods which include heated soybean oils. When she heated a sample of oil from a Cargill plant, a toxic aldehyde called HNE started forming after 30 minutes increasing for six hours.

The author states that the issue of toxic aldehydes in soybean oil has received no mainstream attention but ADM, Cargill and Bunge are all aware of their formation and potential health implications. These health implication are still in need of being identified according to the researcher but could include Alzheimer's, Parkinson's, atherosclerosis, and or cancer.

Discussion goes on to include interesterified oils which is introduced as a solution to the negative health effects of fatty acids. ADM has worked with Novozymes to create an enzyme that interesterifies soybean oil. K.C. Hayes and his research "showing that interesterified oils can raise blood sugar and impair insulin secretion, in addition to negatively affecting cholesterol metabolism" are quoted. K.C. Hayes states, "I don't think we know the full answer yet. I'm just raising the question." Monsanto and DuPont are working on plant DNA to make the soybean's fatty acid profile more like other well-known fats from plant sources like olives.

The discussion then moves on to the dietary balance of omega 6 vs. omega 3 fatty acids. The argument is that the US intake of omega 6 far outweighs the intake of omega 3 fatty acids which must have health consequences. The Dietary Guidelines and AHA recommend fish intake to rebalance the fatty acids but

intake of vegetable oils adds to the insult of a high omega 6 intake. Recommendation is that Americans scale back on omega 6 fatty acids, such as soybean and corn oil, which is equated with eating less processed foods.

The author concludes with a practical note: Americans are not likely to eat more foods with omega 3s like mackerel and herring so companies like Monsanto are developing Soymega seeds that are high in a unique type of omega 3. The implication is that food scientists are changing the food supply. The chapter concludes with quotes from a video found on IFT's website—"What Is Food Science?"—promoting the field of food science by Michael Duffy of the flavor company David Michael &Co and Eric Shinsato at the Corn Products International.

[Back to top]

Chapter 8: Extended Meat

Overall Message: The food industry has adopted the use of soy protein in meat products. Though not unsafe, the nutritional value of soy is questioned. Warner also explores mechanically separated meat (chicken, turkey, and pork), describing it as a "Barbie-doll pink, serpentine substance oozing like soft-serve strawberry ice cream.'

Examples Used: Central Soya (Solae), Applegate Farms Organic Chicken Strips

Major Points

Soy

Initially soy meal went into industrial products, like paper coatings and car parts.

In its raw form, soybean meal doesn't taste very good and contains a compound that blocks the absorption of essential minerals.

Soy protein is a 'perfectly malleable medium for food scientists.'

What is left of Central Soya—the original soybean manufacturer—is now Solae, the world's largest maker of soy protein.

Soy is infused into meat products to stay moist and juicy longer especially when exposed to 'higher abuse circumstances' like precooking, freezing, microwaving, etc.

A big reason that soy is added to meat is due to price- soy protein is cheaper than animal protein.

Soy protein is used in meat so that companies can sell bargain priced products to schools and still make a profit.

Soy is exposed to several chemicals during processing, including hydrochloric acid and sodium hydroxide.

Soy protein is not a harmful protein, but its nutritional value and benefits are unclear.

Soy is a complete protein like meat and is able to produce twice as much protein per acre as any other major crop- a 'sustainable protein.'

Author believes that there is not much else to recommend soy other than protein and have to go through many processing steps to gain vitamins and minerals needed to support it.

Examines studies from FDA supporting the value of soy as beneficial to cholesterol levels but cites instances where American Heart Association disagreed with FDA's findings.

Author has concerns about soy and its relationship to cancer and cites studies done by William Helferich, from the University of Illinois, who studied breast cancer and effects of soy.

"Regardless of where it comes from, protein is an essential nutrient for growth- but most of us in the US are already getting adequate amounts of this nutrient thanks to our heavy meat consumption."

Liquid Chicken

"Although in early 2012, pink slime beef became a poster child for distrust of an industrial food-processing system, chicken actually endures considerably more high-tech poking and prodding than beef."

Chicken is mixed under 'high abuse circumstances' and then fashioned into patties, nuggets, etc. Chicken is never just chicken.

"But animal muscle doesn't just liquefy unless something dramatic has been done to it."

Author describes the process behind mechanically separated meat (chicken).

Author believes that food supply is safe but does not necessarily agree with the tradeoffs.

[Back to top]

CHAPTER 9: Why Chicken Needs Flavor

Overall Message: Manufactured tastes are one of the most defining ingredients in processed foods, almost as common as salt, fat, minerals, etc., and because chickens are grown out so quickly, they have little flavor and require added ingredients. But 'happy chickens,' have more flavor.

Example Used: The author meets with Marie Wright, a flavorist for Wild (a German based flavor company), and also visits the offices of Savoury Systems International (a meat flavoring company).

Major Points

Flavorist, Marie Wright, was interviewed, and she shared inspiration for flavor designs and how higher end designs in food, including flavors, trickle down to larger corporations.

Wright and other flavorists find inspiration and often imitate flavors created by famous chefs.

Most food in the supermarket or fast-food chains has 'natural flavors' or 'artificial flavors' on their ingredient lists.

The author believed that the 'dissonance between her own diet [that of Wright] and the processed, packaged creations she helps formulate for others seemed not so much an expression of cynicism or elitism but rather a symptom of the intellectual compartmentalization of the contemporary workplace.' The author seemed to make a point of showing that Wright chose to eat higher end, 'natural' foods over other foods found at the grocery store and had no problem creating flavors for 'nutrition-free' or other non-high grade products.

Over the roughly five thousand additives allowed to be added to food, over half are flavorings.

You cannot often identify flavors, as they are hidden behind labels of 'artificial flavors or natural flavors.'

Some of the demand for flavoring is related to how plants and animals are grown and raised- this is how the author ties in 'unhappy chickens' to the topic of flavors added to food.

Wright explained that there was a difference in taste depending on the happiness and type of chicken purchased at the grocery store- a low-priced chicken will have minimal flavor, the organic, Bell and Evans-like chicken will have a few 'roast notes and fatty notes,' and the happy chicken- that is free-range eating a natural diet- will have superior, succulent, nutty flavors and taste.

Author then visited another flavor company in New Jersey that produced hydrolyzed vegetable protein that is imitated to taste like meat protein and is added or infused into the meat to give it its flavor.

A food scientist reaffirmed that chicken often does not have any flavor or taste because the chickens are grown out too quickly.

Flavoring was not always as complicated- author explains quickly the history of spices and flavorings in the US.

In nature, flavor comes as a sophisticated mix of hundreds, sometimes thousands, of chemicals, each with its own unique taste and smell. Using 20th Century chemistry tools, scientists work to identify some of these natural flavors.

One of the newest breakthroughs in science is taste modulation.

The author ends the chapter expressing how not everyone can afford to live at the top of the food chain, free of excessive salt, sugar and MSGs.

[Back to top]

Chapter 10: Healthy Processed Foods

Overall Message: While many companies may genuinely strive to improve the healthfulness of products, they will ultimately do what is profitable. Often, this requires development of "better for you" products that appear healthy, but really are not.

Examples Used: Case studies on Penford's PenFibe resistant starch (added to other products as a fiber ingredient), PepsiCo's expansion of "better for you" portfolio, and Mars cocoa flavanol research and product development.

Major Points

Innovations in the food industry, such as Penford's resistant starches, obfuscate the definition of "healthy." For many new artificial nutritive ingredients, it is not possible to determine if they provide the same health benefit as their naturally-occurring counterparts, and the ingredients substituted for fat, sugars, etc. may be equally as unhealthy.

Marketing of "better for you" products often creates a halo effect, in which consumers believe they can indulge on such products without considering the context of their overall diet.

First Lady Michelle Obama's platform to end childhood obesity charged the industry to ramp up reformulation efforts for healthier products. However, since the food industry can set its own standards for "healthy," this effort will not change consumers' eating habits or their health.

To support this stance, the author cites the failure of the Smart Choices program, which gave check marks to Froot Loops, and a 2011 Prevention Institute study that showed 84% of products with on-package labeling identifying them as healthy did not meet basic nutrition standards.

As publicly traded companies, despite the good intentions of their employees, food manufacturers will spend more dollars to market products with the highest profit margins, which happens to be processed foods.

For example, PepsiCo suffered backlash from investors as its brand slipped in popularity while focusing on developing its "better for you" portfolio. As a result, millions of advertising dollars were re-distributed into soda marketing.

Applying a more stringent definition of healthy would make healthy processed foods difficult and expensive to develop.

For example, Mars spent $100 million and decades of research cocoa flavanols and product development, published over 140 papers on cocoa flavanols, and invented a new technique for preserving flavanols during processing, only to find the "healthy" versions of their products did not sell.

The author concludes that, while packaged-food companies and reformulated products can have an impact, their contributions to the overall solution will be small. Therefore, consumers and public health advocates should not look to these companies to improve diet.

[Back to top]

Chapter 11: Sit at Home and Chew

Overall Message: Learn how to shop for, cook, eat and appreciate less processed foods. Organic, less processed foods are better (health and nutrition) than conventional produced foods. Processed – food – rich diets negatively impact health (sugar, food dyes, artificial ingredients).

This chapter began with a historical look at meal preparation, examining how meals and prep time has evolved – women in the work force no longer have the same time to prepare daily meals—have retreated to convenient food items, fast food – more processed foods being purchased and consumed thus impacting our health and the health of our children.

Examples Used: "Cameron" changes his diet and improves the quality of life—both for him and his family. Cameron's mom—Darcy—began a 10-day challenge of giving up processed foods as detailed in Lisa Leake's, "100 Days of Real Food.com"—a site dedicated to teaching others about eating less processed foods.

Note: Darcy's family made huge financial sacrifices to accept this challenge. With a family food budget of $800/monthly, they decided to buy as much organic food as possible – "less pesticide residues and absence of genetic modification" and actually gave up cable TV to help cover increased food costs.

The "Cooking Matters" campaign funded by Wal-Mart and the ConAgra Foundation aimed at "empowering families with the skills, knowledge and confidence to prepare healthy and affordable meals." It mentions cooking classes can cost in excess of $400 – not necessarily a fee that can be afforded by lower-income households.

Major Points

The author describes how food preparation was time consuming, but talks about the importance of selecting less processed organic foods. It takes more time and energy to appreciate (find, cook and prepare) "real food." We have to "do some of our own food processing."

Eating organic isn't always about optimal nutrition—it's the aura of the positive environmental, worker safety effects that make them appealing.

- ✓ "Animal, Vegetable, Miracle" – Barbara Kingsolver

All foods covered in this book can all have a place—as long as it's a small place.

Chapter cites GMA study and Pam Bailey's comments on time saving benefits of packaged foods.

✓ Junk Food vs Fresh

Also cited, Pew Research Center (old poll) on perceptions about cooking—note the Pew study is from 2006.

The frozen food category and sales are on the increase—they replace home cooked dinners.

[Back to top]

**This summary describes the content of "Pandora's Lunchbox" and is provided for informational purposes only. The above does not necessarily reflect the views or opinions of the International Food Information Council (IFIC) or the IFIC Foundation.*

Author Information

Melanie Warner is a freelance writer for various publications, including *The New York Times, Fast Company,* and CBSnews.com. She has spent the past fifteen years writing about business. For two years, she was a staff reporter for *The New York Times* covering the food industry. Before that, she spent seven years as a writer at *Fortune* magazine, where among other things, she wrote about the dot com boom in Silicon Valley. She lives in Colorado with her husband and two young boys.

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