Articles

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The Mindful Measurement of Food: Quantification, the Food Pyramid and Discourses of Taste

Résumé

Les guides alimentaires, les emballages, les étiquettes et les myriades de livres de régime incitent les consommateurs à se focaliser sur les aspects quantitatifs de ce qu'ils mangent. Le garde-manger moderne est rempli de chiffres, de quantités et de slogans de "plus" et "moins". À la base de ces messages réside un discours de quantification qui aborde l'alimentation sous un angle scientifique, objectif et rationnel. Cette recherche vise à expliquer pourquoi les politiques alimentaires officielles des États-Unis utilisent uniquement ce discours et à rechercher les fondements de ce dernier. J'interroge les guides alimentaires pour comprendre pourquoi ils amènent les gens à ne considérer que les chiffres en perdant de vue les aspects subjectifs et qualitatifs de la nourriture.

Abstract

National food guides, food packages and labels and myriad diet books encourage their readers and eaters to count what they eat. The modern pantry is filled with numbers, quantities and claims of "more" and "less." At the root of these messages is a discourse of quantification that encourages a unique, objective and rational approach to food and eating. In this paper I trouble the reliance on this discourse by American federal nutrition policy-makers. Herein, I point to the underpinnings and emergence of a discourse of quantification of food, I ask how public policies in the form of food guides encourage such a discourse, and I point to more subjective and qualitative discourses that are lost or rendered powerless in the face of quantified food.

One would be hard-pressed to peer into their pantry and miss the enumerated health claims printed on food packages: No carb! Only 3 grams of fat per serving! Low Sodium! Properties such as calories, fat grams, portions and vitamins allow us to measure every morsel of food we eat. In the face of the quantification and scientization of food, mindful eating becomes an exercise in calculation, with the goal of enumerated eating being "health" as defined by federal agencies. In what follows I address the theoretical underpinnings of the quantification of food, and I argue that in the face of a discourse of quantification, other discourses and epistemologies are superseded. Such alternative discourses address the qualitative, esoteric and subjective aspects of food and are ostensibly absent from food and nutrition guidance. However, these discourses need to be recognized as legitimate and complementary to a quantitative, rational and objective approach to food. Yes, food is something consumed by the body for energy and sustenance, but it is also taken into the body for pleasure, sensuality and gustatory experience. To discuss food primarily in terms of quantities and scientific components is to encourage changes in discourses of the domestic foodscape. Quantification has made our kitchens more about numbers, and much less about history, geography, tradition and, perhaps, taste.

Enumerating Food—How and Why?

Discourses of science in general, and quantification in particular, have been around in a variety of forms for centuries. In order to impose order, to coerce or control a complex world, quantification provides surety, distinction, and ease of manipula-

tion of people, places and things. In the past, this order was established by systems of measurement for everything from grain to wool to arable land. Much of what is now calculated according to the universal system of weights was first measured using arbitrary and often anthropomorphic systems of quantification. The measurement of a hand of honey, or a pinch of powder, scarcely resembles today's systems of measuring cups and level teaspoons (Kula 1986: 24), yet these systems demonstrated the capacity for abstract quantitative thinking, in which the amount of an ingredient became part of its qualitative property. Gold became synonymous with carats, workouts with calories and olive oil with grams of omega-3 fatty acids. Science relies on quantification to encourage and acknowledge certain sureties. For example, a calorie is universally recognized by the scientific community as the amount of heat needed to raise the temperature of one gram of water from 14.5°C to 15.5°C. Fixing this value allows scientists to speak in absolute terms about the amounts of heat given off by engines, supernovas, food and people.

The heart of quantification is its claim of objectivity. It claims to defy social and cultural constraints, and it claims immunity from sociological analysis or criticism (Bloor 1991; Ziman 1978; Porter 1995). We can measure two metric cups of orange juice, and see that this volume is more than one cup and less than three cups.With a standard measure like a cup (250 ml) emotion, subjectivity and personal taste do not change the size. As well, once we understand numeric relationships of more and less, buying, selling and drinking juice is an exercise in calculation. We can compare nutritional content by looking at numbers: How much vitamin C is in one juice over another? How much sugar does the juice have? How many calories? Moreover, numbers abet the quantification of the personal value of quality. A thirsty person may choose one orange juice over another because it costs less, is organic, because it contains a daily recommended intake of vitamin C or because it is fortified with calcium. The use of this measured language conflates and confuses qualities and quantities, and this is one of the most important consequences of the use of a discourse of quantification.

From my perspective, a discourse of quantification, as a social practice, is a form of persuasive communication. It exhorts certain actions and thoughts (intentionally or not), and forms the basis for particular epistemologies. It is a discourse that employs numbers, amounts, degrees or standards to create knowledge. These numbers outline a vocabulary that dictates how this discourse operates and upon whom it operates. When we communicate with quantities, there is a direction to our discourse that limits the choices available to us. To say that language figures food, eating and the eater is to suggest that a discourse of quantification does not mirror the world as it actually is, but that it invents a world within which certain statements are true or false, certain behaviours are beneficial or harmful, and certain courses of action are recommended or not.

Several critical arguments result from this perspective; three will be highlighted here. First, in the process of figuring food, language certifies a new reality. Here I am making an ontological argument. If we claim that one cup of orange juice is 150 calories we call a particular reality into existence. This reality did not exist prior to a scientist's use of a calorimeter. Scientists, using techniques and technologies, can only describe the orange juice in such terms. In this case, the juice's caloric content is real—more real than its colour, taste or smell. Because calories are a scientifically determined quantity, they are useful in certifying the superiority of one reality over others. No one can see, touch, taste or smell a calorie, but we all know that calories are real and an inherent property of the foods in our refrigerator or pantry. We can argue about the sweetness, freshness, smell or taste of the orange juice, but not its caloric content. The invention and use of a discourse of quantification, therefore, refigures food by authenticating new qualities of foods and suggesting that those qualities are the most important. The first major effect of a discourse of quantification is the invention and certification of a new reality; given this effect, food *is* no longer what it used to *be*.

Second, this new reality helps to generate a new epistemology. This epistemology is responsible for ordering, controlling and organizing the relationship between food, the people who consume food and their health. The new reality certified by a discourse of quantification lends itself to a quantitative epistemology. As more numbers are generated to describe food, those numbers are put into relationship with one another in order to develop a way of knowing what is best to eat, and why. The explanations offered by this new epistemology also countermand other types of knowledge claims. For example, since the construction of health is bound up in numbers and statistics, knowledge about calories and vitamins is more important than knowledge

about seasonality or taste. Knowing about this new reality becomes a method of dismissing other, less rational, less sophisticated, less esoteric or less "professional" knowledge claims.

Third, within this new ontology and epistemology the quality of the food *becomes* its quantities. Invariably, whether a food is "good" or "bad" becomes inextricably linked to the language of quantity. Thus, in a discussion of food, good and bad are calculated and calibrated, not seen, felt or tasted. Throughout the course of the 20th century, the invention of numeric markers sought to replace other available markers for determining whether or not a food was good (Mudry 2009). This is another way to purge taste, seasonality and culture from our kitchens. Discourses of taste, seasonality and culture cannot produce sufficient, rational evidence as to why a food might be good or bad. Nutritionists may nod their heads in approval when a person gets their daily vitamin C from a glass of orange juice. However, the scientist never asks the person if they are drinking the orange juice because of the vitamin C, or if they just like the taste.

Despite the fact that food is routinely quantified in discourses of public policy, diet books, magazines and advertising, there has been little published work exploring the alignment of discourses of food and numbers, or even discourses of food and science. Those who study food scientifically—nutritionists, public health policy officials, agricultural scientists and economists—use a discourse of quantification for everything from food calorie counts, obesity rates, body mass indices, levels of soil nitrogen and vitamin content of vegetables. It is common to read about popularized accounts of these studies in newspaper sections on health or science, on websites like Center for Science in the Public Interest, or Yahoo Health, and in magazines like *Self*, *Shape* and *Men's Health*. The quantitative research provides numeric justification for the claims printed on the packages in our pantries and refrigerators. However, scholars who do quantitative research on food do not reflect on the discursive framework they use to communicate their ideas. The esteemed objectivity of the language of numbers trumps any question of whether or not the language itself serves the "public" in the public policy, reduces the rates of obesity it calculates, makes people understand the intricacies of their body mass index or makes food more nutritious.[1] Scholars in these fields see quantification as a panacea for dietary health problems. Dr. Susan Krebs-Smith, a nutritionist for the United States National Cancer Insitute, writes in the *Journal of Nutrition* that recommendations like eating sugar "in moderation" or consuming fats and added sugars "sparingly" need to be quantified to an exact amount. She recommends the adoption of the rule: "1 tsp (5 ml) of sugar for every 100 kcal (0.42 MJ) above 1000 kcal (4.18 MJ) rule" (2001: 534S). Krebs-Smith is representative of a field of research on food that even in its examinations of language like the example shown here, lacks introspection about how the language works in the context of food, and what other discourses are available to use either in its place, or alongside, a discourse of quantification. Terms like "moderation" or "sparingly" are too slippery for nutritionists, and are at the mercy of personal whims, spoon sizes or shaky hands.

Food studies scholars frequently align food and science by examining the social, political and cultural effects of biotechnology (Kneen 1999; Nestle 2004) factory farming (Magdoff, Foster and Buttel 2000; Mason and Singer 1990; Shiva 2000), obesity (Campos 2004; Critser 2003; Gard and Wright 2005) and food-borne illnesses (Nikiforuk 2008; Rhodes 1998; Leiss and Powell 2005). Each of these studies approach food differently than the aforementioned quantitative scholars whose discursive currency is numbers and statistics. At the very least, food studies scholars appreciate that science and quantification are themselves value-laden social constructs. Marion Nestle writes:

> Discussions of food safety in the media and elsewhere tend to focus on the scientific aspects: the number of illnesses or deaths, the level of risk, or the probability that a food might cause harm. Such discussions overlook a central fact: food safety is a highly political issue. (2004: 1)

Nestle is right, and makes an interesting point, but she places the politics of the creation of the numbers and probabilities at the centre of her study and ignores the power of the language of these numbers to construct and demarcate food's social and cultural boundaries.

In their study of mad cow disease in the United Kingdom in the 1990s, Leiss and Powell (2005) examine quantitative language in the context of risk communication, and the failure of a scientized language to assuage the public about the risks of food-borne illness. They address scientized and quantified language as being a divider of people. In their specific situation, the "scientific and statistical language of experts" is contrasted with the "intuitively grounded language of the public" (27). Leiss and Powell move toward reconciling

scientific language with food, but because risk communication is their field, their concern is good risk communication and delineating public and expert discourses, not good eating habits, finding a medium for communicating ideas about food or the perils of public health combined with discourses of quantification. Discourse, science and food are often discussed using the public/expert dichotomy (Cook, Pieri and Robbins 2004; O'Neill, Elias and Yassi 1997), but what is at stake in these studies is the autonomy of traditional foodways, or the creation of the space for cultural preservation and political resistance. These studies do not seek alternatives to a quantitative discourse, and are not concerned with the discourses of food that are edged out by the objectivity of numbers.

The issue at hand in this paper is more than simply the discourse of quantification and its ability to construct realities of food, eating and the eater. The issue must also be identifying what kinds of discourses are often ignored in the face of discourses of science, statistics and probabilities, and why they are ignored. These myriad discourses of pleasure, sensuality, history, geography and taste are incommensurate to discussions about food when the de facto discourse is enumerated. We cannot measure the pleasure a child feels tasting ice cream for the first time, there is no metric for the taste of the anniversary cake of a couple celebrating fifty years of marriage, and there is no computation for the experience of eating popcorn in a dark movie theatre on a first date. Understanding why the crunch of a McIntosh apple in the fall is satisfying or a sip of kosher wine at a Seder is familial is beyond a rational framework that only sees food for its caloric content, and sees the eater as a soulless machine whose function is to ingest, metabolize and excrete. This impoverished view of food, and the people who eat it, needs to be supplemented by discourses that remind us that food is to be enjoyed and eating is a sensual, pleasurable experience.

More Numbers Are Better: Food Labelling Laws and The Food Guide Pyramid in the 1990s

In the 1990s the American government began a new push for the quantification of foods in the hope of addressing the impending crisis resulting from the national diet. Obesity, type-II diabetes and diet-related heart disease were on a rapid rise. The thinking was that more scientific information about food was needed so that people could make informed choices about what to keep in their larders and what to put in the their mouths.

In 1990 the US Food and Drug Administration (FDA) passed the *Nutrition Labeling and Education Act* (*NLEA*), which required that all packaged foods labelled on or after May 8, 1994, be printed with "nutrition facts."[2] These nutrition facts—contained within the small rectangular information panels on the various containers—indicate serving size, servings per container, calories, calories from fat, total fat, saturated fat, cholesterol, sodium, carbohydrate, sugar, fibre and protein content of the food contained in the package. The FDA also asked that in addition to packaged foods, retailers provide voluntary nutrition information for the twenty most frequently consumed fruits, vegetables, fish and the forty-five most popular cuts of meat. The goal was that the nutrition facts label give the consumer numeric insight into what was in the product that had been purchased. As well, the nutritionally literate could now stand in front of their refrigerator and make good food choices, thanks to the nutrition facts label. The FDA also hoped that nutrition facts could act as a basis for the development of numeric standards to allow the food industry to make certain health claims.[3] It is the nutrition facts data and the FDA legislation that allows Frito Lay's Smokin' Cheddar BBQ flavoured Doritos, Cheetos and Cracker Jack to have stated on its packages these products have "0 grams of trans fats." Nutrition data legislation also ensures that Kellogg's may proclaim Yogos Bits (Berry-berry banana flavour) a "good source of calcium" and "100% daily value of Vitamin C," notwithstanding that "sugar, sugar and partially hydrogenated palm kernel and palm oil" are the first ingredients identified on the label list according to the website for Kellogg's.[4]

In 1992, two years after the FDA legislated the nutrition facts label, the United States Department of Agriculture (USDA) released the food guide pyramid, a new visual icon of healthy eating. The food guide compartmentalized food into "servings" and made explicit the number of servings from each food group Americans should eat per day. The pyramid helped codify a language of quantification of food as it touted its ability to distill the discourse of quantification into a simple diagram. The carbohydrate grouping of foods formed the base of the pyramid, where it was pointed out that Americans required 6-11 servings of bread, rice, cereal, grains and pasta daily. One level up from the broad base, in the fruit and vegetable category 3-5 servings of vegetables and 2-4 servings of fruit

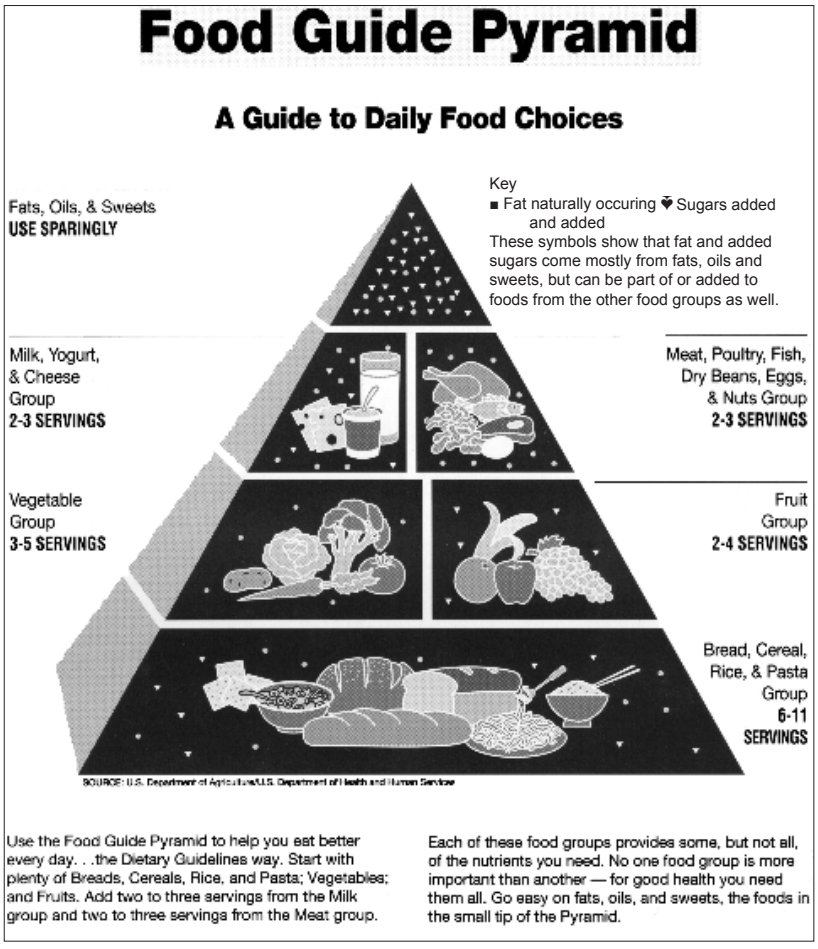
were recommended. The last numerically quantified level above the fruit and vegetable category was the meat (or equivalents) and milk groups, where 2-3 servings of each per day were suggested. The USDA left the tip of the pyramid, "Fats, Oils and Sweets," un-numerated, and counselled the eater to use sparingly, leaving the quantitative judgment of "sparingly" up to each individual. The guide provided a range of numbers of servings for each food group. To determine how much of each group one ought to be eating, it was necessary to categorize oneself. The guide encouraged the eater to determine "How many servings are right for me?" Choosing what was "right," however, required little personal input. The correct number of servings per day was based on daily caloric intakes suggested by the National Academy of Sciences food consumption surveys (USDA 1992: 8).

The USDA's 1992 guide treated populations as groups of calories.[5] The food guide pyramid grouped Americans into three caloric categories: 1600 calories per day (sedentary women and older adults), 2200 calories per day (children, teenage girls, active women and sedentary men) and 2800 calories per day (teenage boys, active men and some very active women) (8). These caloric groups determined the number of servings of each food group one ought to eat.

> [I]f you are an active woman who needs about 2,200 calories a day, 9 servings of breads, cereals and rice, or pasta would be right for you. You'd also want to eat about 6 ounces of meat or alternates per day. Keep total fat (fat in the foods you choose as well as fat used in cooking or added at the table) to about 73 grams per day. (1992: 9)

To help one answer the individual and idiosyncratic question "How many servings are right for me?" the USDA generated three general, abstract types or categories within which individuals must fit. The invention of these categories facilitated the management and control of the American eater and eliminated personal, social and cultural differences among eaters. The three caloric categories created an equation for each eater, reifying the mathematics behind the pyramid.

Because the USDA had specified daily quantities of servings, they needed to provide exact measurements for what constituted each serving. The food pyramid booklet gives examples of servings for each of the pyramid food groups throughout. A serving from the carbohydrate or



Source: USDA

starch-based group is "1 slice of bread, 1 ounce of ready-to-eat cereal, or 1 cup of cooked cereal, rice or pasta." From the "Meat, Poultry, Fish, Dry Beans, Eggs, and Nuts" group a serving is more difficult to measure, and so the pyramid states that its recommended 2-3 servings should be the equivalent to 5-7 ounces (142-199 grams) of cooked meat per day:

> Counting to see if you have an equivalent of 5-7 ounces of cooked lean meat a day is tricky. Portion sizes vary with the type of food and the meal. For example, 6 ounces might come from: 1 egg (count as 1oz of lean meat) for breakfast—2 oz. of sliced turkey in a sandwich for lunch; and—3 oz. cooked lean hamburger for dinner. (USDA 1992: 22)[6]

These encouraged followers of the food guide to measure, weigh and count their foods. Before 1992, a USDA-approved meal meant one had to weigh their cereal, or scoop out their serving of rice with a measuring cup.

The invention of the serving by the USDA was important in organizing and ordering the relationship between the eater and their food. It served as the quantitative epistemological foundation of food choice and control and encouraged the use of food scales, measuring cups and spoons—items usually reserved for food preparation, not consumption. Just as the calorie had become an intrinsic numeric quality of food, the serving gave volumes of food certain quantitative qualities. In addition to choosing a food based on its numeric nutritional value, one could use the serving to guide how much of each food to eat.

The food guide pyramid gives an itemized list of foods that every household should have; good food choices that should be in every home to ensure that Americans eat according to the numbers. The guide provides a grocery list of staples for five days of pyramid-worthy meals, items that should be in your "pantry, refrigerator or freezer" (USDA 1998: 121). As well, the guide provides twenty-three recipes for foods that ensure the home cook is providing the family with a USDA approved healthy meal. Each recipe contains nutrition facts for one serving (providing the cook follows the recipe to the letter). The cook is also advised as to how many pyramid allotted servings of each food group the dish contains. The recipe for "Savory Sirloin" for example, makes four servings. The recipe then tells us "each serving provides 3 ounces [28.4 grams] from the meat group" (63). The dish uses one tablespoon (15 ml) of "plain lowfat yogurt" and one pound (454 grams) of "boneless sirloin steak, lean" and a paltry teaspoon of margarine (which, combined with the sirloin, likely provides the recipe's 5 grams of total fat and 52 milligrams of cholesterol).

What is striking about the recipe for this "savoury" piece of meat, is that the sole concern of the recipe is not to entice the cook with a description of the flavour of the dish, or even to offer suggestions for accoutrements that may make the meal a pleasurable eating experience. Instead, the recipe reads like a scientific paper, with its numbered steps toward repeatability and results. As with the scientific paper, authorlessly written in the passive voice, the cook's whims and personal taste, garnishes or familial serving style is written out of the recipe:

> 6. Garnish with parsley [The recipe called for 1 tablespoon, chopped.]
>
> 7. To serve, slice meat on diagonal into thin slices" (USDA 1998: 63)

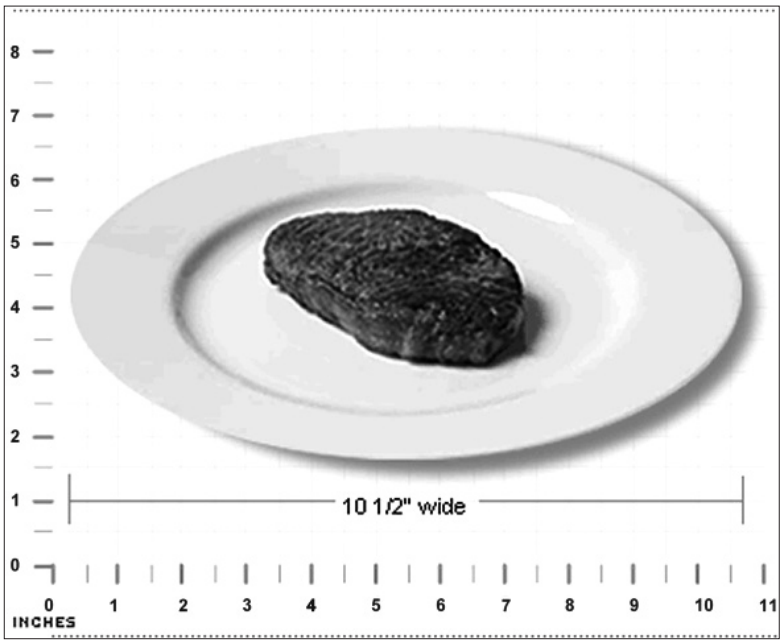
In 2005, the USDA updated the food guide pyramid. The new food guide, called MyPyramid, hasn't changed its shape or mission, but it has taken the discourse of quantification on-line, and further expanded the visuality of the discourse of quantification.[7] The new pyramid still uses proportionately sized coloured blocks for the food groups, but it has added a stick figure running up a set of stairs on the side of the pyramid. This is meant to represent the physical activity that one should engage in for "at least 30 minutes most days of the week" (USDA 2009).The USDA has even allowed us to visualize "quality" food by making each food group a clickable link. We can then further navigate to specific foods in each food group, so that we can see what a proper serving looks like, using pictures of real food on a real plate. If one navigates to beef (which ought to be a "lean cut") in the "meat and beans" group, a window opens showing a "Beef strip steak—5 ounces cooked weight." This lonely piece of meat sits by itself on a white plate with no garnish, no horseradish or no accompanying potatoes. The plate sits in the middle of graph with x and y-axes. The axes measure the width of the plate at 10.5 inches (22.67 cm) and the width of the steak upon it at approximately 5 inches (12.70 cm).

Here, the discourse of quantification has really come home. We can see a quantifiably good meal, we know exactly how big a proper serving is, and we know how to measure the serving relative to the size of the plate. We even know how big the plate is. The new on-line food guide has pictures of hundreds of foods, in every food group, that allow

us to see this quantified goodness of a serving—4 inches (10.16 cm) of almonds, a 4 3/8 inch (11.13 cm) wide wedge of iceburg lettuce, 2 slices of Swiss cheese 3 inches (7.62 cm) by 3 ¼ inches (8.26 cm), a 2 ½ inch (6.35 cm) by 2 ½ inch (6.35 cm) by 1 ¼ inch (3.18 cm) high piece of cornbread. For the USDA, understanding the properties of a good meal requires a scale and a measuring tape, not a culture, a history or taste buds.

Discourses of quantification seem to provide a transparent and transposable way to talk about bodies, health and populations. One could, in fact, argue that these discourses are levelling and beneficial to society. Since its inception, the USDA has always relied on a discourse of quantification to discuss food. One of its founding scientists, Dr. Wilbur Atwater, a USDA chemist working at the Storrs, Connecticut, experiment station in the 1880s encouraged the Department of Agriculture to pursue this line of thinking. Early USDA publications saw men like Atwater tout the importance of learning about the scientific functions of foods, and the digestive and metabolic processes of the body. This knowledge could help scientists understand what Americans needed to eat to be healthy, economical and less wasteful. "Our task is to learn how our food builds up our bodies, repairs their wastes, yields heat and energy, and how we may select and use our food-materials to the best advantage of health and purse" writes Atwater (1887: 59-60).

When the health of a person, or a population, can be measured by what they eat, or the quantity of energy they expend, it becomes easy for government bodies to normalize populations and make broad stroke qualitative claims about "best advantage" or "good health." At first glance, this manner of speaking and thinking may seem like a democratizing and rational approach to food and eating; a way to make *every* body a machine that has both an input and an output of energy—early USDA food guides did just this (cf. Mudry, 2009).This is, however, an impoverished epistemology of food, and not at all egalitarian, democratic or universal. A discourse of quantification is a silencing discourse. It allows only certain kinds of knowledge to be produced within its discursive framework, and rejects others as subjective, woolly or irrational. While the rationality of a scientific discourse may seem egalitarian, it is, in fact, just the opposite (Montgomery 1996). Those producing knowledge about food are the select few who use the discourse. Adjectives that may be useful around the dinner table like crispy, juicy or fresh, mean nothing in a discourse of quantification, because the value of those adjectives resides in people, not in numbers or laboratories. As Halliday and Martin state, scientific language (and I consider the discourse of quantification to be part of this language) eschews "compromises, contradictions and indeterminacies of all kinds" (1993: 6). Instead, our epistemological relationships become "organized around systems of technical concepts arranged in strict hierarchies of kinds and parts" (ibid). When food and eating guides speak only in terms of calories, fat grams, vitamins and minerals, making new knowledge about food must be in the same epistemological vein to be considered legitimate.



Source: USDA

Consuming More Than Just Calories: Alternatives to a Discourse of Quantification

If one were to refer to the quantitative messages of the USDA food guide pyramid, a meal consisting of a filet mignon with a port wine glaze, creamed spinach, hand cut French fries and mayonnaise would be classified a bad meal (too many grams of saturated fat, among other things). Federal food guidance makes no distinction between eating that steak in ten minutes standing up at a restaurant bar, or eating that steak over the course of an hour with a bottle of wine and good conversation with friends and family. The USDA and FDA discourses

of quantification cannot address the "goodness" of the steak from the perspective of whether it had come from a neighbour's farm, if the cow had been grass fed or if it was dry-aged. A discourse of quantification cannot speak to mayonnaise made from scratch with fresh eggs, extra-virgin olive oil and a hint of mustard. A discourse of quantification can construct a foodscape made up of fat grams, calories, vitamins and minerals, but the discourse falls short of addressing how a meal tastes, and cannot describe the experience of eating it.

The example of the USDA food guide pyramid reveals the government's commitment to the notion that food is human fuel, and that food serves nutritional functions and avails itself and the domestic foodscape to measurement, normalization and standards. But as this discourse attempts to direct and change the eating patterns, other discourses of food exist and grow. These discourses form the foundation for alternative epistemologies of quality, other ways of understanding good food. These alternative discourses attempt to define quality using a subjective understanding of food.

Discourses of taste, ones in which our senses, history or geography are the arbiters of quality, empower eaters with the ability to judge a food based on their own experience of eating. These qualitative discourses draw their authority from perspectives other than science. A discourse of taste that issues from the authority of history might cast quality in terms of tradition or techniques for making food taste a particular way in order to preserve culture or ritual. A discourse of taste that issues from geography might attend to quality by highlighting the particularities of a region's food, or a certain cook's kitchen, the authority of which comes from difference and not normalization; everybody's comfort food issues its authority from their own childhood domestic experiences. A discourse of taste that issues from personal experience is grounded in the pleasure of eating in particular ways, at particular times, in particular places and with particular people. These discourses supplement and complement a discourse of quantification and provide different authoritative grounds upon which to build an epistemology of quality.

The goal of elucidating these alternatives is manifold. These discourses can provide a set of tools with which to see the shortcomings of a discourse of quantification. The hope is that one may be able to use these discourses to examine or reflect upon some of the current problems with food and eating in America, toward the goal of mindful eating. It is not my desire to cast a discourse of quantification, science or its methods as villains. I wish only to acknowledge alternative ways of talking about food, and consider them in the context of enumerated food as possible epistemological alternatives. Discourses of taste deriving authority from history, place or personality are an alternative way of talking about food with radically different ends than is a discourse of quantification. Each of these discourses assumes an authoritative voice, but does not use science as the defining epistemological feature of qualitative judgments. The authority is the eater, the farmer, the cook or the gastronome.

These alternative discourses can be found in disparate places. The most common of which is in the home where history, memory, place, experience and taste often trump science when talking about food. This despite federal agencies attempts to control domestic discourses of food with science. Alternative discourses treat food as local, traditional, ritualistic and cultural, and attempt to pass down knowledge and qualitative understandings of food through techniques of preparation, timeliness, memory and menu selection. As Italian cookery author Marcella Hazan writes:

> The taste they have been devised to achieve wants not to astonish, but to reassure. It issues from the cultural memory, the enduring world of generations of Italian cooks, each generation setting a place at table where the next one can feel at ease and at home. It is a pattern of cooking that can accommodate improvisations and fresh intuitions … as long as it continues to be a pattern we can recognize, as long as its evolving forms comfort us with that essential attribute of the civilized family life, familiarity. (2000: xi)

Examining Hazan's treatment of a steak, for example, we see a radically different discourse, without numbers, measurements or portions. In her recipe for grilled T-bone steak, she begins by giving us a cultural and geographical context and by telling us the difference between two breeds of cattle typically used for steaks.

> One of Italy's two prized breeds of cattle for meat—*Chianina* beef—is native to Tuscany. Its only rival in the country is Piedmont's *Razza Piemontese*. The latter is the tenderer of the two and sweet as cream, whereas Tuscan is firmer and tastier. *Chianina* grows rapidly to great size so that it is butchered when the steer is a grown calf, *vitellone* in Italian. (385)

The follower of the recipe is told they need pepper, salt and one T-bone steak 1 ½ inches (3.81 cm) thick

(Hazan gives us a thickness, not for caloric reasons, but to follow tradition). The steak is to be grilled "to the degree desired" and "to your taste" (385). Hazan also adds that one may put olive oil in the steak before cooking it, but "the scorched oil imparts a taste of tallow to the meat that I prefer to avoid" (386). To Hazan, the steak is not about calories, ounces or inches on a plate. The steak is not even about the "meat and beans" food group. To her, and this is just one example, the steak is about Tuscany or Piedmont, about breeds of pastured, farm-raised cattle and about the different tastes and textures of the flesh and the fat of the respective cows.

With Hazan's description of the taste of the buttery Chianini steak we begin to understand that discourses of taste encourage us to explore our senses, to relive our experiences and to use our imagination. These kinds of discourses of taste aim to preserve language and make knowledge claims about quality through referencing what is common to all of us: our own pleasurable experiences and senses of tasting, eating and living food that we think is good. Often these discourses contrast the normalizing effects of a discourse of quantification because they point out the impossibility of making generalizations about food when a food's qualities rely on, and embody, the place from which it comes. Our understanding of good food derives from particularities in soil, weather, location, company, communication, tradition and experience. Knowing the constitution of good food relies on partaking in discussions and sharing personal experiences of how a food tastes. Because tastes are individual, these discourses eschew the replacement of personal judgments with measurements and reject the objectivity of a quantitative discourse. In discourses of taste, food is good because it makes you feel good, and it nourishes the body in immeasurable and sensory ways. This discourse encourages the eater to articulate the experience of their food as something more than calories, energy or means to bodily function. A discourse of taste attends to human experience, makes the eater the sensory authority, and provides one with a space to articulate experiences and share them with others.

Notes

1. Indeed, even when people criticize the language of calculation in food and nutrition, they criticize the numbers themselves, not the actual quantification of food and human activity and often go on to produce more data to justify their criticisms. For an extended conversation about how criticisms of nutrition policy use the same discursive and quantitative framework as do the policies being critiqued—demonstrating how pervasive the discourse of quantification is in discussions of food—see Mudry (2009: 105-36).
2. See www.foodmarketexchange.com/datacenter/laws/detail/dc_lr_reference_dt08.htm (accessed November 8, 2009).
3. In a bulletin entitled "A Little 'Lite' Reading," the FDA introduced new federally quantified regulations that dictated what words food manufacturers could use to describe the qualities of their package contents. There were eleven core terms that the FDA defined: free, low, lean, extra lean, high, good source, reduced, less, light, fewer and more. For example, "light" or "lite" meant that the package contained "a nutritionally altered product that contained one-third fewer calories or half the fat of the reference food. If the food derives 50 per cent or more of its calories from fat, the reduction must be 50 percent of the fat." Just as with the term "serving," the government imbued these terms with quantitative meaning. But these terms also implied health benefits when referenced with the food guide pyramid. Because the food guide pyramid had disdain for fat, "fat-free" is a desirable quality of a food, as is "extra-lean." Presumably, "a good source of fat" printed on the label would make consumers leery of the food, just as "reduced vitamins" or "nutrient-lite." This regulation of the eleven core terms certified the quantitative nature of foods and provided an epistemological language for food talk. See http://www.fda.gov/Fdac/special/foodlabel/lite.html (accessed February 1, 2008).
4. http://www2.kelloggs.comProduct/ProductDetail.aspx?brnad=231&product=8576&cat=fruit (accessed February 16, 2008).
5. Earlier USDA food guides were much more specific than the 1992 pyramid guide, specifying things like occupation, race and geographical location.
6. In the actual food guide publication, the meat and milk industry pressure that caused such controversy in the pre-empted 1991 release of the pyramid becomes ever more clear. While the meat industry lost the battle for a different visual icon to make them seem equally as important as the grains, fruits and vegetables, the food pyramid actually increased the recommended intake of meat from 4-6 ounces in the Basic Four guide to 5-7 ounces in the food guide pyramid. The *Dietary Guidelines for Americans* that are released every five years have increased their recommendation from 6 ounces of meat per day in 1990 to an upper limit to 9 ounces per day in the 5th edition of the Guidelines (2000).
7. See USDA's MyPyramid at www.mypyramid.gov (accessed September 8, 2009).

References

Atwater, Wilbur Olin. 1887. The Chemistry of Food and Nutrition. *Century Magazine* 43:59-74.

Bloor, David. 1991. *Knowledge and Social Imagery*. London: University of Chicago Press.

Campos, Paul. 2004. *The Obesity Myth: Why America's Obsession with Weight is Hazardous to Your Health*. New York: Gotham.

Cook, Guy, Elisa Pieri and Peter Robbins. 2004. The Scientists Think and the Public Feels: Expert Perceptions of the Discourse of GM food. *Discourse and Society* 15 (4): 433-49.

Critser, Greg. 2003. *Fat Land: How Americans Became the Fattest People in the World.* New York: Houghton-Mifflin.

Gard, Michael and Jan Wright. 2005. *The Obesity Epidemic: Science, Morality and Ideology*. London: Routledge.

Halliday, Michael and J. Martin. 1993. *Writing Science: Literacy and Discursive Power*. Pittsburgh: University of Pittsburgh Press.

Hazan, Marcella. 2000. *Essentials of Italian Cooking*. New York: Alfred A. Knopf.

Kneen, Brewster. 1999. *Farmageddon: Food and the Culture of Biotechnology*. Gabriola Island, BC: New Society Publishers.

Krebs-Smith, Susan. 2001. Choose Beverages and Foods to Moderate Your Intake of Sugars: Measurement Requires Quantification. *Journal of Nutrition* 131:527S–35S.

Kula, Witold. 1986. *Measures and Men*. Trans. Richard Szreter. Princeton, NJ: Princeton University Press.

Leiss, William and Douglas Powell. 2005. *Mad Cows and Mother's Milk: The Perils of Poor Risk Communication*. Montreal: McGill-Queens University Press.

Magdoff, Fred, John Foster and Fred Buttel, eds. 2000. *Hungry for Profit: The Agribusiness Threat to Farmers, Food and the Environment*. New York: Monthly Review Press.

Mason, Jim and Peter Singer. 1990. *Animal Factories: What Agribusiness is Doing to the Family Farm, the Environment and Your Health*. New York: Harmony Books.

Montgomery, Scott. 1996. *The Scientific Voice*. New York: Guilford Press.

Mudry, Jessica. 2009. Scaling the Pyramid: Criticisms of the USDA. In *Measured Meals: Nutrition in America*, J. Mudry, 105-36. Albany, NY: SUNY Press.

Nestle, Marion. 2004. *Safe Food: Bacteria, Biotechnology, and Bioterrorism*. Berkeley, CA: University of California Press.

Nikiforuk, Andrew. 2008. *Pandemonium: Bird Flu, Mad Cow Disease and Other Biological Plagues of the 21st Century*. New York: Penguin Global.

O'Neil, John, Brenda Elias and Annalee Yassi. 1997. Poisoned Food: Cultural Resistance to the Contaminants Discourse. *Arctic Anthropology* 34:29-40.

Porter, Theodore. 1995. *Trust in Numbers: The Pursuit of Objectivity in Science and Public Life*. Princeton, NJ: Princeton University Press.

Rhodes, Richard. 1998. *Deadly Feasts: The "Prion" Controversy and the Public's Health*. New York: Simon and Schuster.

Shiva, Vandana. 2000. *Stolen Harvest: The Hijacking of the World's Food Supply.* Boston: South End Press.

USDA Human Nutrition Information Service. 1998. *Using the Food Guide Pyramid: A Resource for Nutrition Educators*. Washington, DC: Government Printing Office.

USDA. 1992 [1996]. The Food Guide Pyramid. *USDA Home and Garden Bulletin* 252. Washington, DC: Government Printing Office.

Wiebe, Robert. 1967. *The Search for Order: 1877-1920*. New York: Hill and Wang.

Ziman, John. 1978. *Reliable Knowledge: An Exploration of the Grounds for Belief in Science*. Cambridge: Cambridge University Press.