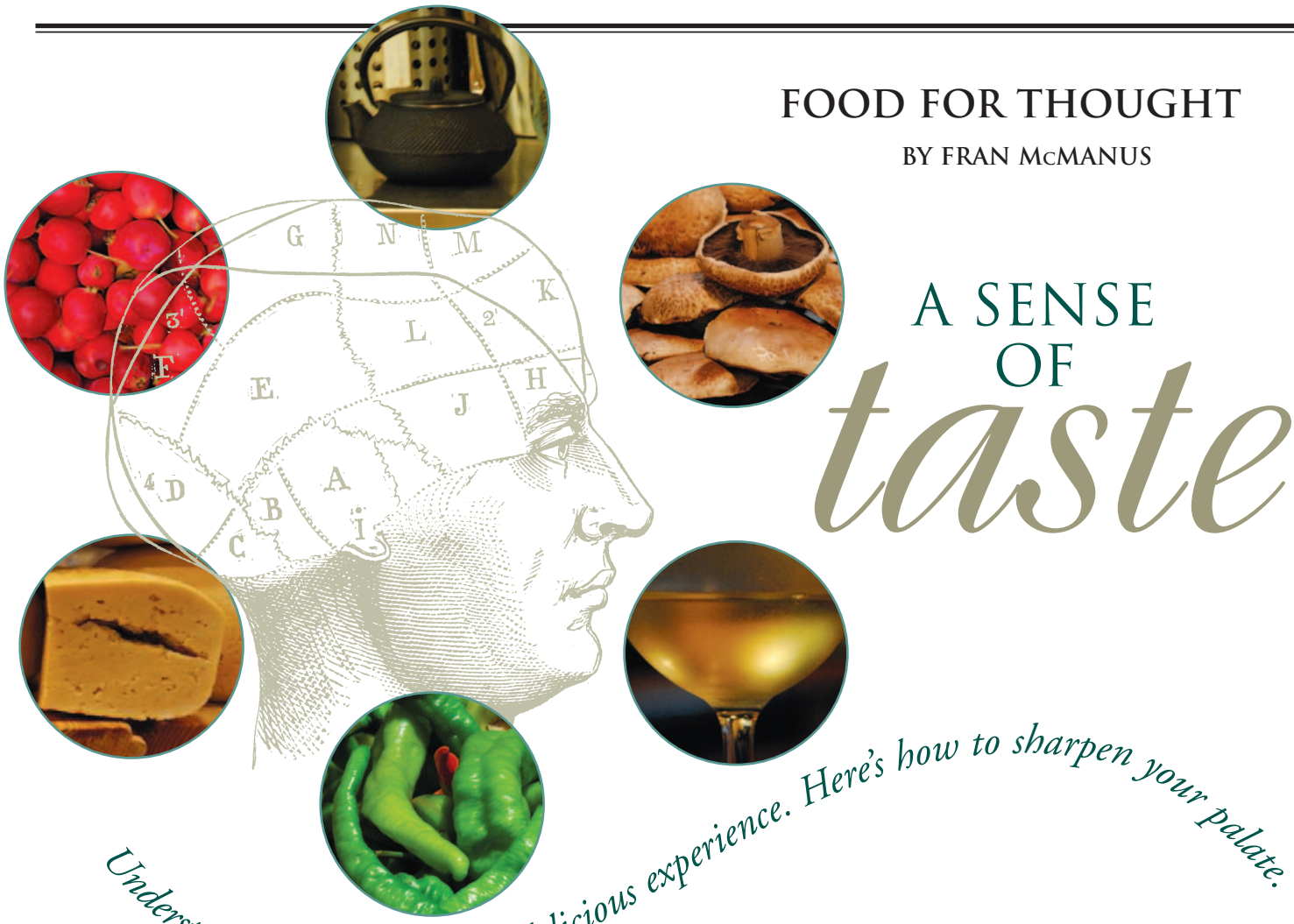


FOOD FOR THOUGHT

BY FRAN McMANUS

A SENSE OF *taste*

Understanding taste can be a delicious experience. Here's how to sharpen your palate.

"Sweet. Juicy. Soft on your tongue. Grainy, like sugary sand that dissolves in your mouth." In this scene from the 1998 film *City of Angels,* Meg Ryan describes the taste of a pear to Nicholas Cage, an angel who has never known fear. Or pain. Or the sublime pleasure of biting into a perfectly ripened pear.

Ryan's description is vastly more instructive than her first attempt—"It tastes like a pear." In the film, her near-instant transition from simplistic portrayal to eloquent musing looks effortless. In real life, anyone who has attended a wine tasting class knows how difficult it is to put into words the aromas, tastes and textures that define the food and drink we encounter each day.

Is it possible to learn to better detect and describe flavors? It's not only possible, say New Jersey's flavor experts, it can also be delicious and fun. Whether you aspire to hold forth on the subtle qualities of a fine wine or you simply wish to be able to distinguish food that is truly well made from food that is only well marketed, there are plenty of resources available to help.

HOW TASTE WORKS

When we talk about the taste of food, we generally mean much more than just the chemical interaction that takes place on the tongue. We are really referring to the flavor of food, which is a combination of taste and smell—both the smell of food in the air (orthonasal odor perception) and the odors that reach the back of our nasal cavity when released by chewing and swallowing (retronasal odor perception). Smell accounts for a large portion of what we think of as the taste of food. We are reminded of this every time a blocked nose deadens the flavor of what we eat.

Taste and smell work in similar ways. Both use specialized receptor cells to capture taste and odor molecules. These molecules stimulate the receptor cells to produce an electrical signal that travels via sensory neurons to the brain. When taste and smell signals reach the brain, they are integrated with input from a range of other stimuli including sight, touch (mouthfeel), temperature, chemical irritation and texture. All of this input comes together in a part of the brain that is also responsible for emotions and for certain types of memories. It is here that we not only decide whether it is safe to swallow the food in our mouth, we also develop and experience memories, feelings, and thoughts about this food. We make a judgment about whether we like this flavor or not. We link it to a past experience or catalog it as something new. We may decide to override an initial aversion in order to experience the flavors of another culture. Or we

Photographs: Carole Topalian

may remember this as something that once made us ill. However, when we try to describe what we taste and smell, we add a new level of difficulty and depth to our tasting experience.

PUTTING OUR EXPERIENCE INTO WORDS

Humans use language to remember experiences and communicate them to others. And we verbalize experiences to help commit them to memory. Yet when it comes to our memories of perceptions, language can get in the way of our experience. In an effect known as verbal overshadowing, our effort to describe complex stimuli, such as flavor, impairs our ability to perceive it. We have no trouble detecting the flavor of a food, but when we try to put our experience into words, our words displace the sensory experience.

Researchers who explore verbal overshadowing point to an imbalance between familiarity with the flavor of something (perceptual expertise) and the ability to describe that flavor (verbal expertise) to explain why untrained tasters have difficulty describing the flavor of food and drink. Experts are able to make accurate descriptions because their training has given them both extensive experience in tasting and a vocabulary that allows them to communicate their perceptual experience with great precision. This balance in strength between perceptual and verbal skills allows experts to alternate between these two areas of the brain with ease.

When fMRI scans were used to compare the brains of novices

TALKING TASTE

Talking with chefs, producers, and specialty food and wine retailers is another good way to learn more about taste. Here's a sampling of tasting advice from experts around the state:

***Avery Gilbert, author of* What the Nose Knows:** "The first thing is paying attention. When you cook, roll the spices around in your hand before you throw them in. Smell a dish as it evolves while cooking. Study your ingredients, learn the notes. The other thing is retronasal olfaction. When you taste something, learn how to roll it around in your mouth to get the volatiles up into the back of the nasal cavity. Exhale through your nose. This activates a whole other set of brain pathways. Things are perceived a little differently when they are going out instead of in."

Gail Civille, President of Sensory Spectrum: "Ninety percent of taste is aromatics. Go unscrew all of the herb jars you've got. Smell them, see if you can name them. Then group together similar-smelling herbs. You will learn that, for example, sage and rosemary have similar smells. That's because they contain the same aromatic chemical. When you do this exercise you start to see the underlying similarities and differences."

Paul Pappas, owner of the Summit Cheese Shop in Summit: "If someone comes into my store and they don't know their taste, I start them off with mild cheeses. Start with something from all three categories—goat, sheep and cow. I label where they come from and ask my customer to taste them, always at room temperature, and to keep a record of what they like and don't like. After a while people start to get adventurous and try more flavorful cheeses. It is sort of a graduation process—you begin to develop a taste and try new things."

Mike Calandra, analytical chemist at Firmenich in Plainsboro: "You need to create a common vocabulary. How could we discuss a painting if we had no common agreement on what we mean when we say *blue*? Like the wine aroma kits, training classes in the flavor industry use scent samples as a reference and a point of agreement that this is what we are talking about when we talk about white fruit or green herbal, etc."

Paul Shu, owner, Holsome Herbs and Teas in Princeton: "If someone wants to learn to drink tea the first question is do you want to focus on green, oolong or black? Or to try a range of teas from a light green to a mid-strength oolong to a black? Smell the tea before you taste. Sample at a temperature where you can comfortably drink—too hot you can't taste it, too cold the volatiles won't be active so you can't fully enjoy. Find a good tea merchant who stocks only high-quality teas. Teas have a wide price range. Don't start with very expensive teas: you will appreciate that they taste good, but you won't appreciate the subtleties until you have accumulated experience."

Maricel E. Presilla, author of* The New Taste of Chocolate: A Cultural & Natural History of Cacao with Recipes *(Ten Speed Press, 2001) and co-owner of Zafra and Cucharamama in Hoboken: "When learning about chocolates, start with percentages. Then move on to origins: starting with countries and then single origins to learn the variations among regions within a country. Start with three or more types with the same percentage. After that pick a country and try a variety of percentages from that country, but don't mix percentages in a single tasting experience. Trust your sensory memory. Things that you have eaten, smelled and experienced should come into your head when you taste. Everything that comes into your memory, write those things down. Don't get too complicated and too baroque with your language. Find your favorites through the process of elimination and then learn everything you can about them. With a great chocolate you have a very long experience in the mouth. It should be lingering and complex with ups and downs. If chocolate comes on with a roar or is very bland, it's not good chocolate."

Ken Kraut, manager of innovation and creation at International Flavors & Fragrances in Hazlet: "Think about the characteristics of, for example, an apple. Is it green, fresh, fruity? Someone might say, 'Oh wow, it tastes really green.' What kind of green? Fresh-cut grass? Watermelon rind? Or 'It smells fruity.' What kind of fruit? Berry? What kind of berry? You are trying to build a mutual language by taking a descriptor and then moving it to a deeper level."

Michel Lemmerling of Bon Appetit in Princeton: "In a classic cheese tasting you sample five cheeses: soft mild; semi-soft with a little more flavor; harder with more flavor; goat; and blue. In each category you have a range of textures and flavor intensities so you can focus on the taste and texture you like. As you taste, make notes. Vocabulary in the cheese world is specific and easy to understand: taste (mild, sharp), smell (pungent, strong, aromatic, stinky) and texture (creamy, firm)."

Jon March, co-owner of Small World Roasters in Rocky Hill: "I suggest a progression that moves from light-bodied coffees to heavier ones. For example, start with Africans such as Ethiopian or Tanzanian; then move on to Central Americans like Colombian, Panamanian, Guatemalan; then on to syrupy Indonesians like Javas and Sumatrans. You don't have to be born with a uniquely sensitive palate. It's a matter of practice. When you taste a coffee, take a mental snapshot. You are building a database so you'll be able to compare."

with trained wine experts, the scans showed that training and experience changes neural connections and that trained tasters use more of their brain when analyzing sensory stimuli. As Avery Gilbert, a Montclair-based author and expert on the science of smell, explains in *What the Nose Knows: The Science of Scent in Everyday Life* (Crown, 2008) "The sommeliers had activity in areas associated with cognitive processing (the orbitofrontal cortex) and in an area where taste and smell information are integrated. In contrast, the nonexperts showed activity in the primary sensory areas and zones associated with emotional response. Practice in making deliberate judgments about what one smells leads to changes in brain function and makes a person a better smeller." From this Gilbert concludes, "The expert's advantage is brain power rather than nose power, and in the regular exercise of these specialized mental skills."

GETTING SOME HELP

Because flavor is such an individual experience, one of the greatest challenges of taste training is developing constructive and meaningful ways to compare sensory experiences with others. Taste and smell are physiological in nature (objective) and yet our perception of them is greatly influenced by our emotional state, our personal prejudices and our own opinions about the truth of what we observe (subjective). Flavor professionals have developed methods to help them analyze and discuss the tasting experience in order to be as objective as possible in their assessment of flavor. By following an analytical approach to tasting, they go beyond generalized impressions to access a more in-depth understanding of what they are experiencing.

A technique called "descriptive analysis" is one of the principal tools used by the food industry to evaluate and describe the flavor of foods. Panelists are taught to identify and describe perceived flavor components within categories such as basic tastes, aroma, and chemical sensation. The intensity of each component is then scored against a scale so that a clear picture emerges of how sweet, buttery, peppery, tomatoey, etc., the sampled product is. For example, Sensory Spectrum, a New Providence-based firm that is a leader in the field of sensory evaluation, created a universal scale to measure the intensity of various flavor attributes. On their 15-point scale the orange flavor in Minute Maid Frozen Concentrate (diluted to proper strength) defines the midpoint. The cinnamon note in Big Red gum is 12 on the scale. Neutral cooking oil is 2. This scale gives everyone in the room a common reference point for their discussion of flavor intensity. (Note: Processed food products were selected as references because of their lack of variability.)

Although most of us don't aspire to taste in such a deeply analytical fashion, we can enhance our taste training by adopting some of the methods that industry uses to break down and describe flavor. The Discovering Your Sense of Taste sidebar lists some resources that bring those methods to the general public.

WHY REFLECT ON FLAVOR?

Taste, smell, color and texture tell us a great deal about the nature of wine and food. Contemplating these attributes as we eat and drink helps us to make the connection between flavor and production methods, origin, and quality.

Side-by-side tasting teaches us about the relative quality of ingredients such as honeys, olive oils, salts and chocolates. We begin to understand which brands or varieties we prefer and which are best used for what purpose (cooking, baking, eating and so on). Tastings also help us understand the flavoring contribution of the elemental components of cooking such as herbs and spices.

In our age of supermarket monotony, tastings remind us that foods come in many varieties. When asked what she learned from a summer's worth of informal tastings with family and friends, 11-year-old Nora says, "I never knew there were so many kinds of olive oil and that there was such a difference in the tastes." Her friend Ian adds, "I found myself looking at all of the different honeys at the store and wondering what they all taste like."

Group tastings are an easy, low-stress way to introduce children and adults to new tastes and foods. "At the store, mommy told me

THE MOST INTIMATE SENSE

Taste is our most intimate sense. Our mouths act as gatekeeper: allowing into our bodies food and drink that nourishes and delights us, while rejecting inedible objects and toxins that threaten to do us harm.

Taste is the sense that distinguishes the sweet, salty, umami, sour and bitter components of food and drink. In taste we are not only experiencing these basic components, we are choosing and rejecting substances that affect our health and survival. Sweet indicates carbohydrates and calorically rich foods, which provide us with ready sources of energy. Salt is an essential element for human health that our natural craving compels us to seek. Umami indicates protein, an important source of fuel and brain power. Sour indicates acid that, in strong concentration, alerts us to possible spoilage. And bitter, which we detect in minute quantities, is a sign that toxins may be present.

Receptor cells for taste are located on the tongue, which is covered with papillae—soft pinkish-red projections—that have taste buds embedded all over their surface. Remember the textbook illustration that mapped the basic tastes to specific parts of the tongue? We now know that while specific areas of the tongue are most sensitive to specific tastes, sensitivity to all five basic tastes is distributed all over the tongue. And some researchers now believe that there are receptors for other tastes such as metallic and fat.

Evolution has divided humans into supertasters, tasters, and non-tasters. Supertasters are far more sensitive to certain bitter components than non-tasters. Research has found they have more taste buds and are more sensitive to a range of tastes and sensations. Although the designation sounds appealing, that extreme sensitivity means that supertasters typically dislike many foods. And, because most of the flavor of food is detected through smell, to be a supertaster is not necessary to fully appreciate flavor.

DISCOVERING YOUR SENSE OF TASTE *Some resources to help you train your palate:*

Tastings and tasting classes are offered at gourmet shops, wine stores, cooking schools and adult education programs throughout the state. These classes can be educational or frustrating depending on how adept the instructor is at explaining how to taste and in prompting students with cues that will help them find words to describe an aroma or taste that they recognize yet cannot put a name to. Guided tastings also help students build their own library of taste memories and create a tasting vocabulary.

Flavor wheels are handy tools designed to guide users through the analysis of flavor in easy, manageable steps. There are flavor wheels for many foods and drinks including beer, honey, coffee, cheese, chocolate, brandy and maple products. The best known is the **Wine Aroma Wheel**. Developed by Ann Noble at the University of California at Davis, the Wine Aroma Wheel breaks down the characteristic scents in wines into three levels that guide tasters from general categories to specific scents (e.g., fruity to tropical fruit to pineapple). The wheel uses a list of descriptors that help the taster put a name to the scent they perceive and create a common terminology with which to talk about wine. The Wine Aroma wheel includes instructions on using common foods to make your own sample scents to help train your nose. *winearomawheel.com*

The Culinary Flavors Kits were developed by The Educated Palate to help professional and home cooks test and sharpen their ability to identify a range of culinary herbs and spices. Their Basic Kit contains 25 high-quality herb and spice essences. By sniffing and tasting each sample, students test their ability to recognize seasonings and learn to isolate their characteristics in order to better understand their flavoring potential. The Educated Palate is working with Fragrance and Flavor Specialties in Mahwah to create a tasting kit for children. *educatedpalate.com*

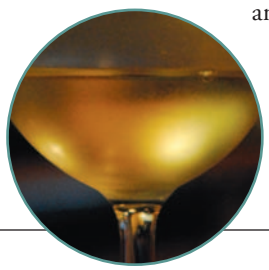
Aroma kits contain vials of scent representing a range of aromas that might be found in wines, including fruits, spices, flowers, vegetal notes, nuts and chocolate as well as off-odors such as detergent, sulfur, cork and mold. Although they are designed for wine education, aroma kits can be used as a general tool for sharpening and testing your olfactory skills. Some of the more popular kits include Le Nez du Vin; the Wine Enthusiast's Complete Wine Taste & Aroma Kit; and The Essences Collection. There is also an aroma kit for coffee—Le Nez du Café. While these kits are available online, they can sometimes be found or special ordered through local wine stores. *makescentsofwine.com; wineenthusiast.com; winestuff.com*

The Flavor Pyramid provides a system for breaking apart a tasting experience to understand its basic components. Developed by Flavor Solutions, Inc., the Flavor Pyramid defines six levels on which we experience flavor. Emotional Perceptions form the basic predispositions we bring to the table from our experiences, travel, cultural background and so on. Next are the attributes of Visual Appearance that influence our perception of a dish, such as color, size and contrast. On level 3 are Aromas, which influence our perception of quality and authenticity and create anticipation for the meal. Once food enters our mouth, Texture, level 4, influences our feelings about that food—adding interest or creating a disconnect between flavor and feel that can ruin a meal. Sensations that further the physical impression of the dish, such as burn and astringency, form level 5. On the top tier are the Basic Tastes of salt, sweet, bitter, sour and umami (the savory taste found in MSG, mushrooms and Parmesan cheese) that, when well used, give a dish complexity and balance. *flavorpyramid.com*

to go pick six or eight apples of my choice," Nora's younger sister Ruth proudly explains, "I picked my favorite apple from the tasting." These new food experiences strengthen and expand the foundation of taste memories that children will build on throughout their lives.

There is no reason to believe that one can't enjoy flavor without being able to explain why. Or that someone who can let loose a stream of eloquent adjectives is enjoying his or her meal any more than you are. But the practice of consciously exploring flavor enriches your dining experience by broadening your appreciation for the notes and nuances of well-raised and well-made foods.

How far you choose to take your exploration of flavor is totally up to you. You can improve your tasting skills simply by making a habit of paying attention to taste and smell. Or you can attend professional classes and learn to hold forth like a well-seasoned connoisseur. The choice is highly personal. The learning process is utterly sublime.



DESIGN YOUR OWN TASTING EVENTS

Putting together your own tasting sessions at home is easy and can be done alone or in a group with family and friends. When I started hosting tastings at my home, Dina Cheney's book *Tasting Club: Gathering Together to Share and Savor Your Favorite Tastes* (DK, 2006) provided lots of helpful advice for getting started. I always include kids, so over time I've modified Cheney's recommendations to make the event more kid friendly. Here are some tips I've learned to help you get started:

- With kids or a group, limit yourself to no more than six items in one tasting session.
- Focus on one aspect such as tasting a range of honeys from mild to strong, a country-by-country comparison of cured hams or a sampling of different varieties of local apples. Most food should be tasted at room temperature.
- Smell before you taste.
- Chew slowly, rolling food and drink over your tongue. Take air into your mouth and exhale through your nose to get the aromatics up into the back of the nasal cavity. Think about what you are tasting or smelling and let the experience sink in before you try to put it into words.
- Discuss what you perceive in each item you taste.
- Make notes to help commit your experience to memory.
- Above all, relax and enjoy yourself—tasting should be fun, not stressful.