BOOKS

SCENTS AND SENSIBILITY

What the nose knows.

BY JOHN LANCHESTER

Behind the perfumer's palette is the history of synthetic organic chemistry.

For years, ever since I started taking an interest in wine, I've been annoyed by the word "grainy." It's a word that mavens use in relation to red wines, and refers to certain types of tannin—the chemical that cures leather, is present in tea, and makes the mouth pucker. Tannin is a preservative and an important factor in the way wines age. Still, how could a liquid be "grainy"?

Then, a few nights ago, I opened a bottle of wine I'd been given, a Languedoc red called Le Pigeonnier, from the European heat-wave year of 2003, and, without concentrating very hard, took a sip, noticed something odd about the mouthfeel of the wine, and suddenly realized—*bam!*—that it was grainy. I'd found the famous grainy tannins, and the term actually made sense, because the wine definitely had a particulate, almost sandlike texture, not unpleasant, but distinctive. What's more, in tasting it I realized that I'd encountered versions of it—milder, more restrained versions—before. Now I knew what grainy tannins were.

Most taste experiences work like that. A taste or a smell can pass you by, unremarked or nearly so, in large part because you don't have a word for it; then you see the thing and grasp the meaning of a word at the same time, and both your palate and your vocabulary have expanded. One day, you catch the smell of gooseberries from a Sauvignon Blanc, or red currants from a Cabernet, or bubble gum from a Gamay, or horse manure from a Shiraz, and from that point on you know exactly what people mean when they say they detect these things. The smell of a "corked" bottle of wine, for instance, is something that, once it has been pointed out to you, you never forget.

The idea that your palate and your vocabulary expand simultaneously might sound felicitous, but there is a catch. The words and the references are really useful only to people who have had the same experiences and use the same vocabulary: those references are to a shared basis of sensory experience and a shared language. To people who haven't had those shared experiences, this way of talking can seem like horse manure, and not in a good way.

Consider product A, in which

> layers of cedar and raspberry strike a sharp upfront note, while clove and creamy notes add body while contributing an exotic, sumptuous character that conveys luxury in its essence. Might there also be a trace of rubber, though?

And then there's B, with

> its aroma of underripe bananas, and the way the fruitiness opens up on my tongue with a flick of bitterness that quickly fades to reveal lush, grassy tones.

Product C, on the other hand, is

> fruity (with a high-profile role for the deliciously garbagey, overripe smell of guava) plus floral (powdery rosy) plus green (neroli and oakmoss).

These are descriptions of, respectively, a chocolate, an olive oil, and a perfume, but you couldn't possibly guess that. I've never caught traces of red fruit in a dark chocolate, I don't even know what neroli is, and, as for underripe bananas in olive oil, I'm more likely to catch the Sundance Kid in Bolivia. That doesn't mean that the people who can taste these things are bluffing; rather, they have a vocabulary of specific sense references that I haven't acquired. (To complicate matters, some-

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times these people actually are bluffing.) There is a loss involved in learning about taste: as you gain a more detailed and precise vocabulary, you risk talking to fewer and fewer people—the people who know what these taste references mean. As your vocabulary becomes more specific, more useful, it also becomes less inclusive.

For that reason, imaginative writers tend to flee as far as possible from the too-specific nomenclatures of the expert and toward pure evocations of sensation. It is possible to feel envious of people who wrote about wine before the tyranny of expert descriptors. The classic text in this respect is the scene in "Brideshead Revisited" where the narrator, Charles Ryder, and his friend Sebastian Flyte make a serious run on the bottles in the latter's ancestral cellar, getting comprehensively blitzed and making tasting notes:

> "It is a little, shy wine like a gazelle."
> "Like a leprechaun."
> "Dappled, in a tapestry meadow."
> "Like a flute by still water."
> "... And this is a wise old wine."
> "A prophet in a cave."
> "... And this is a necklace of pearls on a white neck."
> "Like a swan."
> "Like the last unicorn."

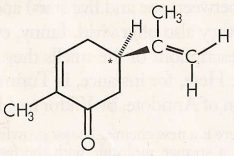
Here the unlikeliness is part of the fun. Paradoxically, the more deliberately over-the-top taste descriptions are, the more they can appeal to a general, untrained reader. Prose that is rich in similes and wild comparisons is making an effort to reach out. This is the sort of game that anyone can play—a wine can remind you of your first kiss, or of the smell of a new car, even if you don't know the difference between volatile phenolics and malolactic conversion.

In a seminal study of the subject, "Wines: Their Sensory Evaluation" (1976), Maynard A. Amerine and Edward B. Roessler called this the "Romantic" tradition in wine writing. They were against it. Both men were professors at the University of California at Davis, an important center for the study of wine, and they wanted to put some scientific backbone into the business of tasting—or, as they preferred to call it, "sensory evaluation," since all the senses were involved. (One of their senses is pain: "It is rare for a wine to be so acid as to give genuine pain. . . .") They sought to bring methodological rigor to what might have seemed an inherently subjective enterprise ("In a paired-sample preference test with 64 trials, how many agreeing judgments are required for significance at the 5% level?"), and the underlying plea for a rational scoring system to evaluate wines, combined with a pragmatic, debunking attitude toward fancy wine vocabulary, had a big effect. The two men had no use for taste words such as "flinty"—"We confess that this flavor (odor?) has never come our way"—or "musty": "Avoid it unless you know what it means. We don't." What they believed in was tasting wines and evaluating them according to verifiable, quantifiable criteria.

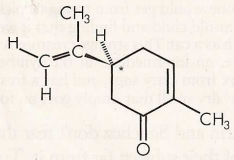
Point systems have been popular ever since. Part of their appeal is the way they create a bridge between the technical process of assessment and something the ordinary consumer can actually use. The most influential wine assessments in the world are those scores, out of a hundred, which appear in Robert Parker's *The Wine Advocate*, followed by similar systems in such magazines as *Wine Spectator*. A system advocated by Amerine and Roessler had the now touching austerity of the nineteen-seventies, offering, instead, to give marks out of only twenty, but the basic idea is the same: break a wine down into color, appearance, odor, body, and so on, assign it marks in each category, and voilà!—you have a single number that sums up the wine. The reader doesn't need a fancy vocabulary of taste; he just needs to know the score.

Point systems aren't the only thing that this more scientific approach brings to the study of taste. It doesn't take long to discover that most of what we think of as taste is, in fact, smell. The tongue can detect only five tastes, salty, sweet, bitter, sour, and a taste whose receptors have only begun to be identified: umami—the savory, brothy sensation that is amply present in Parmesan, seaweed, and ripe tomatoes. All other taste sensations are really smells, as a very simple experiment will confirm: all you have to do to prove it is hold your nose while you taste something.

So taste is mainly smell, and smell is a profound mystery. Why is it that one molecule



smells of spearmint, while its mirror image



smells of caraway? No one knows. When scientists create new molecules in the laboratory, they may know every detail of a molecule's structure yet have no clue about what it will smell like. In 1991, scientists discovered the family of genes responsible for the nose's roughly three hundred and fifty olfactory receptors; these, in combination, are what detect the presence of molecules and allow the brain to translate them into sensory experiences—so H_2S, hydrogen sulfide, hits the receptors and our brain tells us that we are in the presence of rotten eggs.

A trained nose can become very, very good at isolating these sensory experiences and matching them with the relevant molecules. Theoretically, every known odorant molecule could have an agreed descriptor. The descriptor wouldn't need to be in words: it could be a number, so that the wintergreen scent of methyl salicylate would be 172, say, and the garlicky odor of allicin would be 402. That would be the beginnings of a fully scientific language of taste—a joyless, inhuman prospect.

The language of taste has, therefore, reached something of an impasse. On the one hand, we have the Romantic route, in which you are free to compare a taste to the last unicorn or the sensation you had when you were told that you failed your driving test—and others are free to have no idea what you are talking about. On the other, we have the scientific route, which comes down to numbers, and risks missing the fundamental truth of all smells and tastes, which is that they are, by definition, *experiences*. One of the things that are so welcome about "Perfumes:

The Guide" (Viking; $27.95), by Luca Turin and Tania Sanchez, is that, while the authors embrace point systems (they offer between one and five stars) and science, they also offer vivid, funny, evocative descriptions of the smells they write about. Here, for instance, is Turin's discussion of Antidote, by Viktor and Rolf:

> There is a new chemical beast prowling the streets, a strange molecule with the feel of a light, volatile top note and the power and tenacity of the most powerful drydown materials. Smelling it at length gives the feeling of alarm one would get from trying to pick up a two-year-old child and finding that it weighed as much as a car. This strange creature is called sclarene, an intermediate in the synthesis of Ambrox from clary sage, and has a fresh-herbaceous dry smell that simply goes on forever.

Turin and Sanchez don't fear the science of their subject; far from it. Turin is a professional biophysicist and a principal in a company that develops new-smelling molecules; Sanchez is that happy thing, a perfume critic. To enjoy "Perfumes," you don't need to know, or even to like, perfumes, such is the brio of Turin's and Sanchez's prose. Their book has a series of introductory chapters about scent in general, and reviews of more than twelve hundred perfumes, initialled by T.S. or L.T.

To understand perfume, science is a good place to start, since it's with the nineteenth-century discovery of synthetic fragrances that modern perfumes began. Synthetics are molecules that are made in the laboratory, and they are crucial to perfumery: they supply fragrances that can't be created through natural processes. Take the smell of a rose, for example. It is instantly recognizable in nature, but it can't be chemically extracted from the flower. (It's possible to extract rose oil, but rose oil doesn't quite smell like a rose.) To create the fragrance of a rose, you must synthesize it from other molecules; the route to the illusion of nature travels straight through the lab. Synthetics can also be "abstract," in that they don't smell like anything else at all—they aren't surrogates for natural smells. In an earlier book, "The Secret of Scent," Turin cites Coca-Cola as a brilliant example of an abstract taste, one that resembles nothing in nature.

The history of perfumery is, in large part, the history of synthetics. The first important family was the fougères. These came into use in the early eighteen-eighties and, as the word suggests, are said to be fernlike—which is one of those scent referents that I simply don't get. Let's just say that cheap and cheerful versions of fougère are present in Blue Stratos and the great smell of Brut. Soon vanillin, which was synthesized from pinewood sap, became a crucial ingredient in perfume (it's a dominant note in Guerlain's Jicky), and then, in 1888, a chemist accidentally invented synthetic musks while fooling around with TNT. (Turin describes the role of musks in perfume as "something akin to the transparent varnish on a painting that gives all colors depth and saturation.") Natural musk comes from the glands of certain deer that live in the Himalayas, so the laboratory version had the significant advantage of being much cheaper. The typical cost of synthetics is fifty dollars a kilogram; naturals can be hundreds of times as much.

In subsequent decades, as the inventions continued, the perfumer's palette of scents steadily increased. Turin writes, "The enormous artistic edge that chemistry gives perfumers is the ability, familiar to the gods of Olympus and to fairy godmothers when putting together a titanically gifted baby, to compose a personage from disparate inherited virtues: the rosy, grassy freshness of lily of the valley, the rasp of lily proper, the mushroom note of gardenia, the lemon of magnolia, the banana of ylang ylang, the deep woody velvet of violets, the boozy sweetness of rose, the soapy edge of cyclamen, etc. Marshalling all these molecular genes into producing something viable, even beautiful, is far from easy." It is as if the history of painting had proceeded via the invention of new colors. There are fashions in smell, too, and the heavy-duty perfumes of the nineteen-eighties, in particular, come in for a hard time from Turin and Sanchez. They give some of these perfumes a rating of five out of five, while at the same time more or less begging the reader not to buy them. Opium is "unquestionably one of the greatest fragrances of all time," Turin writes. "Yet I would hate it if anyone wore it near me today."

That, it turns out, is relatively mild, as their criticisms go. Consider 212, from Carolina Herrera: "Like getting lemon juice in a paper cut." Amarige, from Givenchy? "If you are reading this because it is your darling fragrance, please wear it at home exclusively, and tape the windows shut." Heiress? "Hilariously vile 50/50 mix of cheap shampoo and canned peaches." Princess? "Stupid name, pink perfume, heart shaped bottle, little crown on top. I half expected it to be really great just to spite me. But no, it's probably the most repulsively cloying thing on the market today." Hugo, the men's cologne from Hugo Boss? "Dull but competent lavender-oakmoss thing, suggestive of a day filled with strategy meetings." Love in White? "A chemical white floral so disastrously vile words nearly desert me. If this were a shampoo offered with your first shower after sleeping rough for two months in Nouakchott, you'd opt to keep the lice." Lanvin's Rumeur gets a one-word review: "Baseless."

This is fun to read—and a rare pleasure, too, since the importance of perfume advertising means that one doesn't often get to read strong criticism of multimillion-dollar-earning fragrances. The joy of Turin and Sanchez's book, however, is their ability to write about smell in a way that manages to combine the science of the subject with the vocabulary of scent in witty, vivid descriptions of what these smells are like. Their work is, quite simply, ravishingly entertaining, and it passes the high test that their praise is even more compelling than their criticism. Here, in full, is Turin's review of Lancôme's Trésor:

> I once sat in the London Tube across a young woman wearing a t-shirt printed with headline-size words ALL THIS across her large breasts, and in small type underneath "and brains too." That vulgar-but-wily combination seems to me to sum up Trésor. Up close, when you can read the small print, Trésor is a superbly clever accord between powdery rose and vetiver, reminiscent of the structure of Habanita. From a distance, it's the trashiest, most good-humored pink mohair sweater and bleached hair thing imaginable. When you manage to appeal to both the reptilian brain and the neocortex of menfolk, what happens is what befell Trésor: a huge success.

You don't have to like perfume to like "Perfumes: The Guide." Its blend of technical knowledge and evocative writing is exemplary in the strict sense: people who write about smell and taste in any context should use it as an example. Turin may be wrong about what appeals to the male neocortex, however. As Sanchez says, "The question that women casually shopping for perfume ask more than any other is this: 'What scent drives men wild?' After years of intense research, we know the definitive answer. It is bacon." ♦