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*Smell plays a large part
in our sense of taste.
Without it
apples
would be
indistinguishable
from onions.*

*Every lover knows
what it is to
treasure the scent
of a loved one.
It may be that when
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about smells.*

GOOD Sc

Smell gives our food taste. It stimulates us sexually,

Of the two genders, women have the more sensitive noses, probably because their prehistoric ancestors depended on aromatic clues in evaluating prospective mates.



Advocates of aromatherapy believe that the odors of such substances as sandalwood can be used to alter moods.



ents

soothes our nerves and keeps us healthy.

BY JOHN SEDGWICK
PHOTOGRAPHS BY DUANE MICHALS

GOOD SCENTS

Of all the body's faculties, our sense of smell is surely the least appreciated. Helen Keller, whose own nose was so acute she could perceive a coming rain, poignantly called smell "the fallen angel" of the senses. Even an average nose can detect the scent of just a few stray molecules skittering into the air—a feat unequaled by the most sophisticated machines. Smell is almost completely responsible for the sensation we call taste. And one whiff can recall the past so vividly, it can bring tears to our eyes in a Proustian rush.

Despite its impressive powers, researchers have ignored the nose for most of this century, as if it were somehow impugned by the bad odors it could detect. But now our sense of smell is enjoying a comeback that would have thrilled Marcel Proust himself. It has led to a new understanding of smell's long-baffling fundamental chemistry and of its important connections to health, nutrition, psychology and—as researchers zero in on that olfactory holy grail, the human pheromone—sex.

Given all the activity, it is fitting that the most dramatic discovery has been the genetic proof that *Homo sapiens* was designed as a virtual smelling machine. Linda Buck, Ph.D., and Richard Axel, M.D., molecular neurobiologists at Columbia University, have identified several hundred genes, each of which dictates individual smell receptors—and marvel at the possibility that more than a thousand will ultimately be found. "An unusually large amount of the human gene pool is devoted simply to smell," says Beverly Cowart, director of the Taste and Smell Clinic at the Monell-Jefferson Taste and Smell Center.

With more than 6 million smell receptor cells, our noses can distinguish 10,000 different smells. Much information processing is done by the olfactory bulb on the roof of the nasal cavity deep inside the nose itself. From there, the results are fired directly to the brain's limbic system, which is the seat of memory and emotion, bypassing any higher-order cognition. Thus the scent of rose-hip tea can trigger a full range of emotions associated with a languid tryst one rainy afternoon two

decades ago. Researchers speculate that this startling associative power is a holdover from the days before we had language, when, as one scientist puts it, "memory came in the form of odors, not words." You needed total, immediate recall when the scent of a hungry tiger suddenly wafted your way.

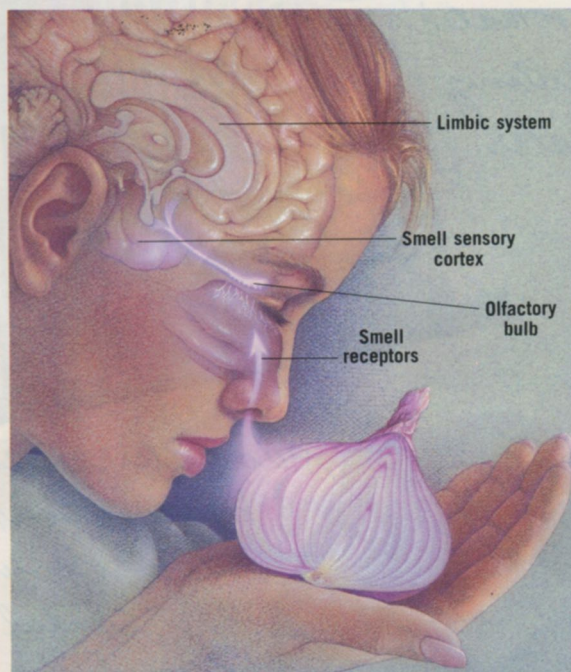
The female sense

Of the two genders, women have the more sensitive noses, probably because their prehistoric ancestors depended on aromatic clues in evaluating prospective mates. "The female could smell if a man was healthy, his dominance status and what kind of food he'd been eating," says Charles J. Wysocki, Ph.D., a biopsychologist at Monell. Most animals can do no less, and some primitive peoples are still remarkably smell-dependent. Tribesmen in Papua New Guinea, for instance, expect their wives to be able to identify all of their family members and their neighbors solely by smell.

Smell is still critical to life, even in advanced societies. It alerts us to spoiled food or poison gas, and it is, in large part, responsible for our sense of taste. Rather feeble organs, our taste buds can distinguish only four flavors—sweet, sour, salty and bitter. Smell provides the nuances that make all the difference. As we

chew, we send little puffs of the food's aroma to the back of our mouths and up to the smell receptors. Without smell, apples would be indistinguishable from onions, and a cup of the most heavenly mocha java would taste like bitter hot water. Susan Schiffman, Ph.D., professor of medical psychology at Duke University, has taken advantage of smell's contribution to taste by producing a food-flavored nasal spray to help dieters curb the urge to eat.

Scientists are only now beginning to uncover the more subtle effects of smell on society. Women who live together, for example, will find that their menstrual cycles become synchronized over time, a feat most likely accomplished by smell. And smells identify us. We all emit



Inside the nose, odoriferous molecules from the onion hit smell receptors and set off an impulse that travels along nerves connected to the olfactory bulb, bypasses the higher processing centers of the cortex and zips directly to the smell sensory center, which is part of the more primitive limbic system. Spared filtering by the cortex, smell generates a reaction that is more emotional than intellectual.

a genetically encoded "odor print" that is as distinctive as our fingerprints. (Only identical twins smell alike.) Babies and mothers can recognize each other by smell. Possibly, this smell bond is love.

"Our sense of smell keeps us responding to environmental clues, including those from the opposite sex," says Dr. Wysocki. "Smells from one individual can shift the hormone levels in another. So it may be that when we talk about a couple having a certain chemistry, we are really talking about smells." As it is, every lover knows what it is to treasure the scent of a loved one. One of the things about my wife that I find most endearing is that she wears a shirt of mine to bed whenever I spend a night away from home.

Mood-altering odors

Of all the senses, smell is the most naive. With every breath, smells enter our bodies without much interference from our minds. While a vast vocabulary has been developed for the other senses, a smell is identified rather stupidly only by its source—be it fish or talcum powder. Perhaps because they are so elemental, smells have long been believed to have unique access to and

influence over our subconscious. The field is known as aromatherapy, and some of its claims have a distinct witch-doctor quality: that the aroma of myrtle can ward off epilepsy, or that the smell of oranges can conquer depression. While such notions have their place in folklore, precious few of them have passed any scientifically designed double-blind tests.

In the past few years, however, scientists associated with the Fragrance Research Fund in New York City have labored to dispel the tincture of quackery that has clung to aromatherapy by creating a new term, *aromachology*, to describe their pursuit of scientific proof for the powers of aroma. Under the fund's aegis, some substances have indeed been shown to have mood-altering capabilities: The vanilla-like smell heliotropin, for instance, is relaxing; jasmine and peppermint perk people up. As a result of such studies, heliotropin has been used to calm patients undergoing stressful Magnetic Resonance Imaging scans.

The Japanese firm Shimizu, which exports many of these fragrances to the United States, deploys a woody scent described by one executive as "an aromatic Quaalude" to soften the mood in the banquet room at its headquarters.

(continued)

ANOSMIA: SMELL BLINDNESS

For those who have lost the ability to distinguish odors, life is bland and often dangerous

For all the pleasures that smell delivers, there are those who cannot sense them. According to a 1986 survey, 1.2 percent of American adults, or 2 million people, suffer from the complete smell blindness called total anosmia. It is brought on chiefly by age: Half of all Americans over age 65 and three quarters over 80 suffer from some form of anosmia. The condition can also be triggered by a blow to the head, a persistent flu, exposure to poisonous chemicals and other more mysterious causes. Judith Birnberg became anosmic after a year spent sneezing. When her sense of smell was briefly restored she "fell on [her husband] in tears of joy and started sniffing him, unable to stop," she wrote in an article for *Newsweek*.

The condition is dangerous as well as depressing, since anosmics are unable to detect spoiled food or gas leaks. They also are likely to stop socializing, since they

can never know for sure that their bodies don't smell, and cannot enjoy the food and drink that others savor.

Smell disorders have traditionally received little sympathy from physicians. "They say, well, it isn't cancer or end-stage heart disease, so why spend your money and waste your time thinking about it?" says April Mott, medical director of the Taste and Smell Center at the University of Connecticut School of Dental Medicine. "Basically, you learn to shut up and stop asking."

Besides, unless the anosmia is the result of a physical blockage in the nose, there is little that physicians can do. Such drugs as phosphatidylcholine and Elavil have produced limited success for some sufferers, and the anti-inflammatory steroid prednisone has been effective as well, but at the too-high cost of suppressing the immune system. Happily, some specific anosmias are temporary. Unlike receptor cells for other senses, those for smell regenerate, and individuals can sometimes revive them by repeatedly exposing themselves to the previously undetectable smell.

GOOD SCENTS

Dr. Schiffman has found that eau de chocolate-chip cookie reduces aggression in subway cars, and when Alan R. Hirsch, M.D., neurological director of the Smell and Taste Treatment and Research Foundation, tested the effect a floral scent had on the urge to buy, he discovered that shoppers under its influence were prepared to pay \$10.33 more for a pair of Nikes. Finally, there is, in Japan, a brand of alarm clock that sprays a jet of a flowery scent before the alarm goes off, so that sleepers can awaken feeling peppy. Some companies pipe a similar odor into offices to improve productivity.

Despite the aroma-chology stamp of approval, doubters remain. Susan Knasco, Ph.D., an environmental psychologist at Monell, suspects that mood scents work no better than mood music, which has been found to irritate nearly as many customers as it attracts. "Individual preference can be pretty wide," she says. Wysocki, her colleague at Monell, believes that the tremendous associative power of individual aromas reduces the likelihood of their having any universal effects. He points out that a woman who first smelled a rose on a walk through a garden with her mother will feel very different about a rose fragrance than a woman who first smelled a rose at her mother's funeral. In one study, those who were led to believe they were exposed to unpleasant odors (but really were not) reported more health problems—usually mild complaints like headaches and eye irritation—than those who, through suggestion, thought they were exposed to a pleasant lemon scent. "It's not the odor, but the association that does it," says Dr. Knasco.

Other psychologists have made use of the associative properties of individual smells to provide customized therapy. Schiffman, for instance, has anxious clients relax during therapy while smelling an apricot. If they should start to feel tense outside of her office later, they can recapture that relaxation by taking another whiff of the apricot. Schiffman also uses certain smells to provoke happy memories that might be therapeutic. After his wife died, one patient couldn't bring himself to go out with other women again because he had such a bad feeling about dating. The perfume of an old girlfriend, and the great memories of their romance it evoked, broke the spell. Schiffman has also used various homey fragrances—roast beef, Christmas tree, apple pie—to help patients more fully recall their childhoods.

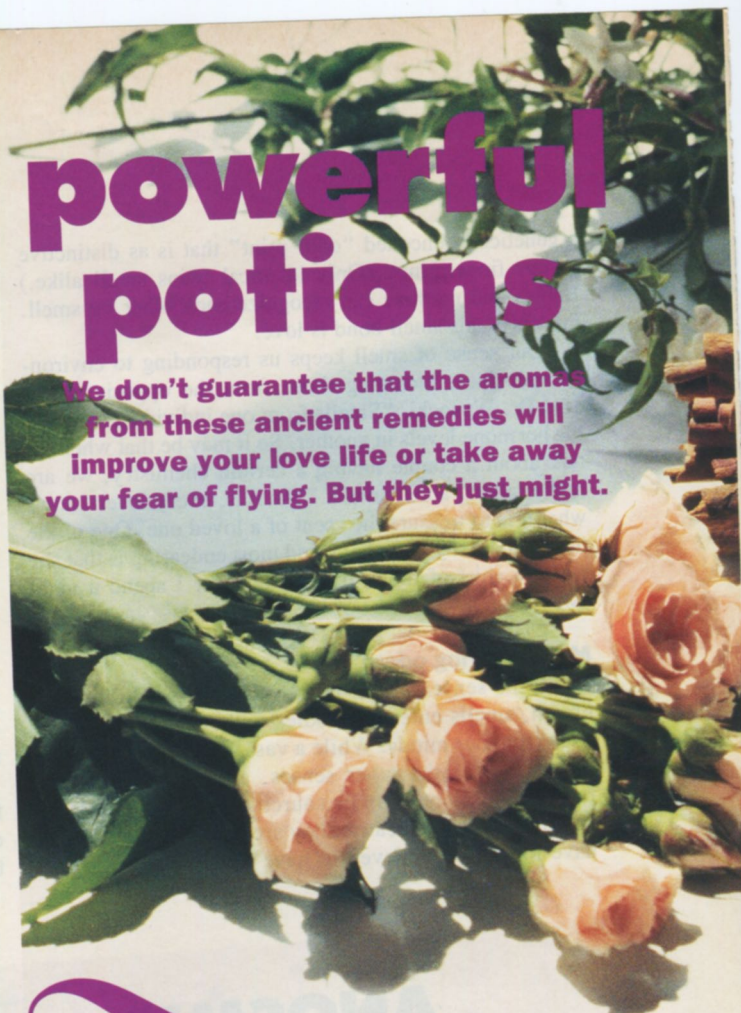
The smell of love

While fragrances carry individual associations, pheromones have effects that are species-wide. Pheromones are very specialized olfactory substances produced by most animal species to communicate sexual receptivity, territorial rights and social status. They are particularly important in regulating reproductive behavior in most mammals. This may account for the age-old search to identify one that works on humans. While Wysocki is markedly skeptical of the capacity of fragrances to alter

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powerful potions

We don't guarantee that the aromas from these ancient remedies will improve your love life or take away your fear of flying. But they just might.



The herbs for these aromatherapy potions can be found at herb stores in most cities, and herb stores, believe it or not, are listed in most Yellow Pages. Your basic ingredient is water or ethyl alcohol (96-percent), which you can get from any pharmacy. If the alcohol is too strong, try vodka or corn schnapps. In most cases, use enough liquid to almost fill a 10-milliliter, or one-quarter-ounce, container. You'll also want to have on hand jojoba wax and one or two oils: apricot-kernel, sweet-almond and soya. The following recipes are meant to be used as incense or in aromatherapy lamps, which can be found in New Age boutiques or health food stores.

Unfortunately for the uninitiated, there are few rules for mixing a good scent. It's largely a matter of individual taste. One exception is the ratio of ethyl alcohol or vegetable oil to the rest of a recipe. For example, you'll use 60 drops of scent for 10 milliliters of alcohol. Always shake any mixture thoroughly before you test the scent. Then, be prepared to experiment: You'll probably have to try a little more of this, a little less of that, before it's perfect.

Use care when handling essential oils, as they can irritate skin. If pregnant, consult your physician before dabbling with aromatherapy. Of course, you should *never* drink any of these substances. Finally, never put essential oils on any direct heat source such as a light bulb—it could explode. Keep them in beautiful bottles and simply remove the lid when you need the benefits of their power.

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FOR PHOTO DETAILS, SEE FASHION DETAILS

GOOD SCENTS

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moods, he is "fully open-minded" about the existence of human pheromones. If humans don't have pheromones, he says, "they would be a major exception to the rules of evolutionary biology." Although there's a smattering of research that suggests he may be right, nothing definitive has emerged. For example, a mammalian pheromone recently isolated from the barnyard pig that induces sows to assume the mating position appears to have an effect on human females as well. When a synthetic version, called Boarmate, was sprayed on a chair in one dentist's office, it caused women to cluster around a little closer. Still, no one really expects to find a pheromone that would cause humans to start copulating with strangers in the street. "The effects are going to be extremely subtle," says Wysocki. "Not a reflexive thing, more a modifier."

A firm called EroX recently announced that it has located a human pheromone, which it is preparing to market next year. According to EroX's founder, Kevin McCarthy, the potion was discovered "by serendipity." In laboratory tests, it caused men to feel "self-confident," women "warm and relaxed," and both genders to perceive a special "openness"—to each other, presumably. When McCarthy smelled it, the substance put him in "a very good mood." Possibly because he could smell the money in it.

Smell, in fact, may be the only sense left that hasn't been fully exploited commercially. The possibilities are vast. As cultural norms change, so do associations with particular odors, opening up opportunities to create whole new connections with new aromas. Dr. Hirsch points out that only older Americans still associate individual smells with their sources in nature. To the generations born since World War II, lemon means lemon cleaner, pine evokes furniture polish, and mint is a breath freshener. But perhaps that is only appropriate. After all, a smell is only a memory. □

John Sedgwick's work has appeared in The Atlantic, GQ and Esquire.

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PERSONALS

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accomplished plenty. Only after he'd passed another round of interviews and Annette had consulted me did she provide him with my name and number.

I wish I could have been there in the room to see Ron's face the day he came back from lunch to find the message from Annette instructing him to call me. Because when he read the name on his message pad, it was more than dimly familiar to him. Nearly 20 years before, when he and I were just 19, he'd read my first book and, smitten with my photograph on its cover, sent a letter to me at the college where I had briefly been enrolled as a student. The letter came back to him with the news that I had since withdrawn from school.

Not surprisingly, Ron had met and been involved with numbers of other women in the two decades since writing that letter. But he had never married, and he wasn't sure he'd ever truly been in love.

One night last October he drove the two hours from Boston to my door.

Since then I have stopped looking at the personals. I call this a committed relationship, which to me means not that it's without difficulties, but that each of the two people involved has sufficient stake in what we have that we're willing to work very hard at untangling problems when they arise.

When my children asked where I met Ron, I told them. (Just as I did two years ago with Bill.) I'm encouraged to speak openly about the personals just because some people are apparently shocked by the concept. What does it say about our society that so many of us feel reluctant to admit we want love?

Answering the personals is nothing to be ashamed of. All of us possess the ability (but not all of us make use of it) to shape our destiny rather than passively let life have its way with us. I want my children to grow up knowing that if you aren't satisfied with the way things are, you have the power to change your life. You need to figure out what you're looking for, to begin with. Then you have to articulate it. If you're looking for a used car or an apartment, it makes sense to read the ads, or run one. No reason I know why the same rules shouldn't apply to love. □