



Chemo sense

Editorial

By Graham Bell
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ChemoSensory science can find many contexts in which to have significant impact.

Our main article deals with the slow deterioration of these senses over time in the later part of a person's life, and why it will profit health service administrators, carers and food providers to understand these changes and meet the challenges facing them.

However, the situation is now more interesting in affluent societies, where people over 60 years of age are, or will soon be, "cashed up" and educated as never before. They expect the fine things of life that they have worked for and achieved to continue for the rest of their lives.

These expectations cannot be met by continuation of the status quo in their lives while their physiology ages and their sensory systems go into decline. It is therefore imperative to provide for these growing needs with solid systematic science in this field, from which will flow helpful, profitable technologies and a welcome reduction in health care costs.

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Dynamics of Food Flavour Perception in the Over 60s: New Implications for Food Design and Diet for Older People

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Introduction

Flavour perception is a multimodal phenomenon in which several independent sensory systems are integrated by the central nervous system to produce experience of food (or drink) in the mouth which we know as flavour (see the recent book by Taylor and Roberts (Eds.), 2004, and its review by Bell, 2004). As a person reaches a mature age, beyond 60 years, the constituent sensory modalities contributing to flavour perception begin to fail. Perception of flavour becomes attenuated or radically altered, often with negative consequences for general safety as well as for good nutrition and health maintenance of the aged person (DeVere, 2003; Reiter and Costanzo, 2003). This review will draw

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Tom Tykwer's Movie Perfume and the World of Scents.

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Readers of this journal are doubtless familiar with many of the peculiarities of olfactory perception and its numerous ramifications into virtually all aspects of life, from anthropology to chemistry to neurology; from the social and historical to the individual and atmospheric; from odor abatement in industrial processes to fragrance creation and the art of perfumery; from the medical to the hedonistic, the gustatory and the erotic; and on into aromatherapy and the near mystical and transcendent. The following remarks touch on a few of the questions writers and film makers have to ask with this sensory mode and more broadly, how people in the humanities and the arts have grappled with the difficulty of representing smells, that evanescent realm of memory and imagination.

When the German author Patrick Süskind published his first novel, *Perfume (Das Parfum)* in 1985 he virtually reinvented the "good read" in German literature which, after a decade and a half of inferiority and autobiographical self-introspection had grown quite stale. *Perfume* made the German bestseller list for over eight years running and was translated into 42 languages (as of 2005). What would have been more natural than to follow up the book's success with a movie - especially as the plot is a good one?

Perfume is an imaginary historical novel set in eighteenth-century France. Its central character, Jean-Baptiste Grenouille, is a socially and psychologically marginal figure. As an abandoned child, he is slow to speak, but discovers early on his one great talent, the olfactory equivalent of divine power, including absolute olfactory memory and

recall. Smells are his only interest and passion. His harsh upbringing includes work for a tanner in hideous and unhealthy conditions, but on occasional delivery errands he also gains a detailed olfactory map of Paris. Once, when ordered to take goat-hides for scenting to Baldini, a perfumer with a declining business and flagging creative powers, Grenouille seizes like a tick - a simile often invoked for him - his chance of getting out from the stench of tanning and into the fragrances of perfumery and thus coming closer to fulfilling his dream of one day creating the ultimate perfume that would inspire love in everyone. He knows what this would be, since he discovered it one night emanating from an adolescent girl in a little courtyard. He was attracted from afar by the barest scent trail escaping from her, and when he kills her and smells her empty, the principle of her scent orders his whole interior olfactory world. Thanks to Grenouille's indefatigable creativity, Baldini's perfumery, where he soon starts to work, gains European prominence, but after learning from Baldini as much as he can, Grenouille leaves Paris for Grasse, the capital of perfumery at the time, in order to broaden his techniques there.

The journey to Grasse takes seven years in the book (much less in the film), as it is interrupted by a solitary sojourn in one of the most remote and atmospherically pure areas of France. There, living primitively in a cave, Grenouille gives himself over to exquisite imaginative olfactory orgies until he discovers one day to his great horror that he himself is odorless. This discovery sends him on his way to Grasse, where he takes a job with a perfumer and finally acquires the knowledge of the more sophisticated

techniques of scent production, enfleurage and maceration, makes his own experiments, and embarks on a series of murders of young virgins whom he kills for the sole purpose of obtaining their body odors - ingredients for his ultimate love-inspiring scent. Twenty-four victims already mark the murderer's trail, spreading fear and horror in the hearts of the whole population. Laure Richis, the daughter of the richest citizen in town, is the last. Her murder finally leads to Grenouille's arrest and death sentence. The execution, however, cannot be carried out because Grenouille, stepping out on the scaffold and wearing just a drop of his essence of woman, inspires such love, desire, and concupiscence in the thousands of spectators that the planned beheading degenerates into a mass orgy. This is Grenouille's moment of supreme power - and of disgust at the easy olfactory gullibility of ordinary humans. He leaves Grasse and heads back to Paris, where he sprinkles the rest of his perfume all over him and has himself killed and cannibalized by a group of criminals in a kind of suicide by proxy.

All the ingredients of a good movie script are here: a murder plot, occasion to show some pretty, young women - alive, dead, and naked - a weird sense of erotics, the novelty of a sensory mode not often explored in the arts, and a historical, slightly exotic setting.

But Süskind, somewhat of a reclusive author, not unlike Pynchon, needed twenty years of persuasion until he agreed to the movie: *Perfume*, the film, directed by Tom Tykwer (of *Run, Lola, Run* fame, 1998), was released in Europe in September of 2006 after a couple of years of media hype, and

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in the USA in December of that year. It triggered its share of internet sites and Thierry Mugler created a collection of perfumes in an elegant *coffret*, available online. The film played successfully in Europe without, however, becoming an outright blockbuster, but it hardly registered in the USA at all outside of circles already interested in the esoteric realm of olfactory perception.

For those interested in olfaction *culturally* it poses different challenges than it does for those interested in olfaction primarily *scientifically*. Both inquiries, however, require truly interdisciplinary approaches. Are there perhaps plausible reasons, intrinsic to the sense of smell, that prevented a wider success of the film? Or, to put the question differently, what are the peculiarities of olfactory perception and the possible obstacles to creating an olfactory-centered visual artwork with broad mass appeal? Is there anything that makes this sensory mode more difficult or more problematic than other senses when it comes to representing it in film?

A number of things come to mind: for one, there are really only two kinds of odors in the world: the good and the bad. While this distinction is clear and visceral, it is much harder to be precise or intelligent about everything in between; "good" or "bad" is often all we have to say about a given smell. We are just not very good at talking about smells. Both the book and the film make a lot of this sharp distinction along which the world literally breaks into two halves: an attractive and desirable - and a disgusting and dangerous one.

Our difficulty in putting smells into words has to do with three interlinked areas: neurology, linguistics, and problems of

taxonomy and categorization on which all finer distinctions rest.

Olfactory taxonomies have been one of the oldest and most persistent scholarly and scientific concerns, testifying to the difficulties in ordering and structuring the realm of smells. Hans Henning's smell prism from the early years of the twentieth century is an example. It offers a spatial representation of smells, grouping them in a triangular prism with six primary odors. These include fragrant, putrid, ethereal, burned, resinous and spicy as its categories. Another classification is the Crocker-Henderson system. It has only four classes of odor: burned, fragrant, acid, and caprylic. Even earlier the Dutch physiologist, Hendrik Zwaardemaker had given the problem some thought too; and more recently Anne Noble and her team at the University of California-Davis developed a wine aroma wheel, i.e., a circular model of (enological) categories which has since been adapted to classify other aspects of the chemical senses. This helps, of course, but for olfactory perception it still does not address the fundamental paucity of its linguistic terminology. Dan Sperber, Director of research at the CRNS in Paris, in *Rethinking Symbolism* (Cambridge UP, 1975, 115-16) notes that

Even though the human sense of smell can distinguish hundreds of smells and in this regard is comparable to sight or hearing, in none of the worlds' languages does there seem to be a classification of smells comparable, for example, to colour classification. Ethno-linguists systematically describe colour classifications, often containing several hundred terms ordered under a small number of basic categories. ... We would search in vain for a similar work on smells; perhaps this is a sign of

lack of imagination on the part of scholars, but more likely it is because there is nothing for such a work to be about. ... There is no semantic field of smells. The notion of smells only has as lexical sub-categories general terms such as 'stench' and 'perfume.' Our knowledge about different smells figures in the encyclopedia not in an autonomous domain, but scattered among all the categories whose referents have olfactive qualities.

In the absence of a lexical category where we would find "smells" - as we find "colors" or "geometric shapes" or "trees" and apart from a few adjectives (that are often borrowed from other sensory modes - the *sweet* smell of success, the *pungent* aroma of, say, a cheese, the acrid stench of a factory process - we always refer to the source of an odor sensation: "the smell of ..."; "it smells like ..." when we talk about smells. Using adjectives instead - a "flowery" perfume," "a spicy note," "an aldehydic perfume" - does not change anything in this fundamental referential system: we are simply unable to escape the chaos of the vast world of objects (legions of which have olfactive qualities) for a more orderly world of linguistic categories and referents. This embarrassment of ours is aggravated by the fact that western societies by and large have not found it necessary to instruct their members on the sense of smell. (That there exist groups, however, that integrate olfactory perception culturally and with more social structuring power than we do, is discussed by Constance Classen et al., in *Aroma: The Cultural History of Smell*, 1994. She is one of the leading anthropologists who emphasize olfactory perception). There are music lessons at school; there is art and photography and film; there is sports and

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dance and massage and other legitimate fields of the tactile. And even the sense of taste, in its high valuation in *haute cuisine*, fine dining and drinking and the very creative and artistic vocabulary of food and wine writing has its dimension of teaching and learning and the arts. And it has at least four broadly recognized basic qualities: sweet, sour, bitter, and salty. Olfactory perception only has two: good and bad - the latter to be avoided if at all possible. Nevertheless, this simple dichotomy has given rise to two "industries," broadly speaking: of deodorization and of perfumery, and the latter has achieved the status almost of an art, certainly of artifice and has one crucial aspect in common with the culinary: its creations are consumed and disappear in the very act of their appreciation.

But before briefly discussing deodorization and perfumery, let us focus on a few salient neurological aspects underpinning this state of affairs, the functioning of the nose itself, and the peculiar anchoring of the sense of smell in the brain. I do not want to enter this territory in any depth, as many of my readers are more familiar with this side of olfactory perception than I am. But there is the peculiar wiring of the olfactory apparatus in the brain through the olfactory bulb, the strong neural connection to the limbic system and thus emotions and memory that is generally associated with smell. As one of the two main chemical senses, olfactory perception also is strongly correlated to the affect of disgust that is more easily triggered through the lack of distance between the perceiver and the object of perception, the danger of contact, contamination, and contagion that characterizes olfaction and gustation. And there is the always intriguing but equally

contested role of olfaction in sexual attraction, the potential of human pheromones and how to harness them. And although Linda Buck and Richard Axel in their Nobel-Prize-winning work (2004) made great strides in explaining the fundamental workings of the nose, there are still several models in operation, specifically the two that Luca Turin, himself a famous nose, biophysicist, and olfactory chemist has termed the "shapist" and the "vibrationist" model of nasal molecular-synaptic interaction - with himself firmly in the second camp. Be all this as it may: it remains in the background of the present discussion - to which Turin's remarkable, *Parfums, Le Guide* (on line, in French at <http://www.flexitral.com/research/Guide%201994.pdf>) and Chandler Burr's biographical account of Turin's life and work, *The Emperor of Scent: A True Story of Perfume and Obsession* are more pertinent - because they deal with perfume.

Perfumery and perfumes have a long history, and trade in perfume raw materials has left historical trails since biblical times and even before. Humans took pleasure in good-smelling things from earliest times and they most often linked them to the spiritual and the erotic; the "Song of Songs" in the Old Testament provides rich references to both. On the other hand, humans were also fully aware of the unpleasant end of the olfactory spectrum that came to be so feared in the enlightenment of the eighteenth century and the culture of enlightenment and rational, critical inquiry that has underpinned our (western) secular world ever since to the point that the grand human project of enlightenment itself and progress can justifiably also be called a process of deodorization of both the human body and its public spheres,

counterbalanced by their re-odorization with approved new good scents. In this historical long view, olfactory standards have changed and we live today in a different world from the one Süskind evokes. But we also still live in cultures each with its individual olfactory aura, from the near odor-free world of American consumerism, to the more pungent world of French cheeses, and the reek of the slums of the large cities of the "Third world."

The stark division of the realm of smells has remained a key point of fascination both in real life and in Süskind's book and the movie: on the one hand the world of perfumery, of the deliberate creation of good scents, the aesthetic luxury products of rich and sophisticated societies - on the other the world of the often inescapable malodors of life, the stench of offal, cadavres, the miasmas of the swamps and cemeteries and the very streets and alleys, cramped and crowded and filled with the reek of rot and excrement! All this had become at the very time and place where Süskind set his plot - French enlightenment, the eighteenth-century, the city of Paris - an area of public interest and scholarly investigation. Alain Corbin's acclaimed book, *The Foul and the Fragrant* (1982 in French; 1986, Harvard UP in English) describes this growing historical concern with public malodor just in time for Süskind, who speaks French and lived in Paris at the time, to have studied it as a rich source for the well-researched historical context of his novel. It is to a large extent this contrast on which the novel thrives and from which it derives its *frisson*, which creates the dark fascination for the reader. In *Perfume* Süskind created for the first time a fictional representation that was both sensory and sensual of that dichotomous world - and

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pursued it via a hitherto largely neglected sensory mode. (There were some leads, though: Eugene Rimmel, for instance, the nineteenth-century French perfumer whose business, now London-based, still survives, at least in name, may have provided a historical model for Baldini - and had written interestingly on the perfume business himself; and Roald Dahl, in his short story "Bitch" (1974, in a collection of short stories titled *Switch Bitch*, still available in paperback) had provided a brief, sexed-up plot model that Süskind possibly drew on). He did this through a brilliant postmodern pastiche, full of allusions and references to other texts, historical dates, and linguistic imitations, relying on thick description, drawing on solid research and his superb imagination - all married to a plot that was simply a page turner. In other words: Süskind succeeded in literature, in language, to capture the essence of olfactory perception!

How did he do it? - Imagination, thick description, intertextuality are the writerly devices he used. These devices not only accommodate but require and build on a key quality of olfactory perception in language - a quality feared by some writers in some contexts and loved and extolled by others: the inevitable break of the surface structure of a text when smells are invoked in the reference to their origin. Süskind's description of Paris begins thus:

In the period of which we speak, there reigned in the cities a stench barely conceivable to us modern men and women. The streets stank of manure, the courtyards of urine, the stairwells stank of mouldering wood and rat droppings, the kitchens of spoiled cabbage and mutton fat; the unaired parlors stank of stale dust, the bedrooms of greasy sheets, damp featherbeds, and the pungent

sweet aroma of chamber pots. The stench of sulfur rose from the chimneys, the stench of caustic lyes from the tanneries, and from the slaughterhouses came the stench of congealed blood.

The sense of smell is an environmental sense, transgressive and, through its biology, enveloping, contagious, and unavoidable. Olfactory references thus lead out of the more controlled realm of visual description, say, of circumscribed social classes, or coded verbal exchanges among characters directly into the wilderness of the object world. And in Süskind this is more often than not an unpleasant and disgusting world. He draws on the fact that olfactory perception is more connotative than denotative, more allusive than directed, more implicit than explicit - and thus leaves the reader with more leeway for imagination than visual description does, which takes the reader on a much shorter leash than the olfactory.

And yet, of course, novels as texts, novels per se do not smell! But they also do not sound, nor do they include images or tastes - except through the evocative power of language itself, the magic of the black letters on the white page that our imagination turns into an experience of sorts - mostly, one suspects, through visualization: the mind has an eye, as we say - but it is not entirely clear where its nose is. Tykwer, the director, makes a valid point in an interview, on line at

<http://www.twitchfilm.net/archives/008277.html>: some people had warned him of the difficulty in converting olfaction into images, as it were. But what is the difference, he countered: it is already converted, namely into language. He is right: any form of cultural recording is a kind of dehydration of sensory experience that needs to be reconstituted in the act of consumption, be it in reading, in viewing, in interpreting and

discussing of the record and regardless of whether the record is of actual events or imagined ones to begin with. Olfaction is different only insofar as it tends to ramify more, is perhaps less predictable, more individual but also more contextual in its invocation of whole situations rather than single elements: it is the synaesthetic sense par excellence, drawing on and invoking in memory, contexts in addition to specifics, a whole scene into which its individual parts are integrated; it is the sensory mode that both draws on and feeds the imagination in myriad ways. J.K. Huysmans in *Against the Grain* (1884 in French) provides rich examples of the representative translations of one sensory mode into another; in Aldous Huxley's *Brave New World*, his famous dystopian novel from 1932, people go no longer to the movies but to the sensorially more comprehensive "feelies" where a "scent organ" plays, for instance, "an herbal capriccio." What Tykwer had to provide, therefore, was a new "translation" from Süskind's astoundingly rich and evocative verbal representation of a smell-centered world into the language of *images*. All cultural production, in any art form, is a kind of translation from an *ur-text* that we don't have: the original experience - real, historical, or imagined. It is on this translation that the film ought to be judged.

I think Tykwer did a remarkable job. But after the book's success the bar had been placed high for the film. In plot, the film follows the book quite faithfully; in its philosophical implications that Süskind creates via a rich intertext and in additional episodes that the movie leaves out, the film is thinner - not an uncommon phenomenon in turning literature into cinema. But the key criterion is the recreation of the atmospherics of the book, the ambiance, the starkly binary world of stench and

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fragrances. In this the movie has, if anything, an advantage over the text, at least in certain scenes, such as the crucial encounter between Grenouille and that girl with the basket of plums, his first victim, through whom his thus far still muddled olfactory inner universe falls into place and order. The impact of this key scene rests on its playing on the common notion that we fall in love at first sight - and not at a first whiff. Well, Grenouille does the latter - but Tykwer also makes it clear that there is no love on Grenouille's part: he is incapable of that human feeling; the erotics of that scene - and there *is* erotics - is stark, brutal, and murderous but entirely asexual. Time and again, Tykwer uses this scene in flashbacks as a shorthand for "explaining" what makes Grenouille tick. But the movie, especially in the early scenes on the grimy market in Paris, where Grenouille is born under a fish stall and left to die among the offal, is also brilliant in invoking directly and with nauseating immediacy that world of dirt, slime, disgust, and danger that the text creates through exhausting enumerations, such as the one quoted above. The rapid cut, cut, cut from one grimy, yucky object - fish heads, rotting produce, greasy clothes, dirty hands, sweaty faces - often close up and cropped to take them out of context and deprive the viewer of the safety of distance, works at least as well as the lists and descriptions in the text. Another device Tykwer uses effectively is lighting or, more often, the absence of it. The film overall is rather dark, generally a reddish, warm darkness. Objects, people, faces merge with it, fade out, lose their clear boundaries; the images thus are not firmly framed but dissolve around the edges and create their impact through connotation and association rather than through clear denotation and categorization. Viewers are forced to

extrapolate and fill in, to contextualize and complete. Objects, such as the flaring nose surrounded by darkness, without even the face to which it belongs, that opens the film, appear decontextualized, monstrous - and it falls to the reader to "make sense." The pervasive use of that warm half-shadow also lends objects a heightened sensuousness as the camera seems to caress them, especially the women, notably Laure, Grenouille's last victim. In contrast, the scene where her father detects her dead body is over-exposed and fades to complete white in an effort to show his horror, pain, and sense of loss: his mind goes literally blank. Lighting, then, and color and tint are the atmospheric devices Tykwer uses: rapid cuts and juxtapositions imitate Süskind's lists of olfactory objects and both decontextualize *and* demand contextualization, thereby offering a visual-narrative *ersatz* for the intrinsically contextualizing nature of olfactory perception itself. The film played more successfully in Europe, I believe, because of broad underlying cultural parameters. First, it *is* set in Europe and is historically and geographically specific; second, the French have a reputation for sensuousness - even its aspects that Americans, this the third point, find less appealing from the perspective of their own cultural values that unambiguously privilege cleanliness and odorlessness. And finally there is a certain weirdness, creepiness both in the book and the movie that derive from an intimacy, an ongoing invasion of personal space that is not sexual (in which case it would be at least understandable, even if not necessarily welcome) but aims at something different - scent, odor, the body along its margins. I think it is this darker side of enlightenment that Europeans have a greater sense for or are, perhaps, simply more resigned to live

with than Americans. The movie is thus well worth seeing, even if not an outright masterpiece. But as so often with literature turned into cinema: for the more philosophical implications, the book is still indispensable.



Upcoming Events

- 7-9 June, 2007** **"Bacchus at Brock"** International Interdisciplinary Wine Conference
St Catherines,
Ontario Canada
Info: www.brocku.ca/bacchus
- 9-11 July, 2007** **39th Annual AIFST Convention**
Adelaide Convention Centre
Adelaide South Australia
Info: aifst@aifst.asn.au or www.aifst.asn.au
- 26-28 July 2007** **AACSS: 9th Annual Meeting**
Adelaide, South Australia
Contact: Stephen.Trowell@csiro.au
- 12-17 July 2007** **IBRO** (International Brain Research Organisation) Melbourne, Australia
Contact: <http://www.ibro2007.org>
- 19-23 July 2007** **Avian Olfaction Symposium** IBRO Satellite on Avian Brain, Cognition and Behaviour
Heron Island, Queensland, Australia
Info: <http://workshops.med.monash.edu.au/birdbehaviour07>
- 28 July - 2 August 2007** **The 13th Australian Wine Industry Technology Conference**
Adelaide, South Australia
Contact Rae Blair: rae.blair@awitc.com.au
- 12-16 August 2007** **7th Pangborn Sensory Science Symposium** Hyatt Regency, Minneapolis, USA
Abstract deadline: 31 January, 2007
Info: www.pangborn2007.com
- 6-8 May 2008** **Enviro 08**
Melbourne
Info: rvquitz@bigpond.com
- 21-25 July 2008** **International Symposium on Olfaction and Taste (ISOT)**
San Francisco, USA
Now calling for proposals for satellite meetings
Contact Tom Finger: tom.finger@uchsc.edu ■

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