5

Tasting and Smelling

> A gustative and olfactory sensation is not at first the knowledge of a taste or of a fragrance. . . . Before being a thematizing experience of an odor or a flavor, before the intentionality that already supposes the retreat of the feeling before the felt . . . sensation is enjoyment or suffering. (Franck 2008: 57)

In the three preceding chapters, the topics are what we might think of as the dominant senses. We use expressions such as 'I see' or 'I hear you' to signal that we understand what our interlocutor has said, and I may say that 'I am touched' when I have been emotionally affected by a story or situation. Medical auscultations tend to use sight (e.g., inspecting throat or ears), touch (muscle tone, tissue, swellings), or sound (e.g., listening to heart beat, resonance of lung cavity). But the senses of taste and smell enter the picture much more rarely; and the language related to these two senses is much less developed or metaphorized into other parts of language than those of the primary senses. In schooling, the tasks children accomplish tend to provide experiences for sight (e.g., science demonstrations, chalkboard notes), sound (e.g., lecture), or touch (e.g., 'hands-on' investigations). Again, little is done to develop or draw upon the ways in which these two other senses allow us to make sense of the world. There are, nevertheless dictions that draw on these senses, generally appealing to the affective tonality of experiences. For example, an athlete might say 'I could taste victory' or we might talk about being able 'to smell a rat'. We may also say that 'something smells bad', when we are suspicious of something without being able to 'put the finger to it'.[1] As these and other expressions show – e.g., 'to follow one's nose' to signify being guided by instinct – smelling and tasting are considered as lesser, more corporeal, instinctual, and subjective senses than the others, which allow much greater sense of agreement be-

[1] Which senses are metaphorically extended may actually differ between languages. For example, the German language has an expression that metaphorizes a good sense of smell to express that someone has good or extraordinary competencies of anticipation ('einen Riecher haben', to have a good nose for); they also express extreme dislike of a person by saying that they can't stand his/her smell ('ich kann ihn/sie nicht riechen').

tween people. Already for the ancient Greek, 'of smell and the object of smell it is less easy to speak definitely than of the senses above-mentioned. . . . The reason is that this sense in us is not exact, but inferior to that of many animals' (Aristotle 1907: 421a). Because taste is similar to the sense of touch, and because tact is the sense in which 'man' surpasses all animals, the human sense of taste was thought to be 'in a condition of greater perfection' (ibid: 421a). Although Aristotle lists a number of smell qualities, which he likens to those of taste – including the adjectives sweet, bitter, pungent, harsh, sharp, and oily – these are not as easily 'distinguishable as flavours so that they have received their names from these latter in virtue of the similarity in the things' (ibid: 421a).

Even though we do not tend to pay much attention to it, smell experiences are pervasive and tend to be associated with emotions and memories. We associate certain events and people with their smells and our emotional reactions toward them. Freshly baked bread, for example, tends to be a memorable experience for many people. Interestingly, although many people may associate a schooling experience, for example, with a particular smell, we tend not to be aware of the smell of our own homes though we might immediately notice distinctive smells when we enter the homes of others. I know that there is a particular smell about my home, which I sense every time upon returning from a trip (of sufficient length). On the other hand, when I bake bread or merely bring a yoghurt bucket full of berries from the garden, the entire house soon is perfused with the respective odor that I clearly perceive. I still remember my first chemistry teacher, in tenth grade, who did not allow us to place our noses above a beaker or test tube to smell. He showed us how to hold up the vessel and how, with a slight movement of the hand above the vessel, we can take in slight whiffs. He explained to us that in chemistry, the products of reaction might be acrid, strong, and even dangerous to our sense organs – a fact that teaches us of the affective and passive nature of the senses. We already understand that this sense, as all other senses, involves contact and passion.

A Tasting Excursion, an Excursion of Taste

Before reading this section, you may actually want to engage in some comparison tasting on your own. Take any two or more foods of the same kind and taste them. I am particularly fond of tasting olive oils, single-malt whiskeys, dark chocolate, and wines. We buy them for their taste and spend considerable time attempting to describe these foods. We have done the same with friends coming to our home, placing five or six small glasses with olive oil, asking our invitees to look, smell, and taste.

There are times and situations, when these two senses are primary, as related to the culinary arts, and then we often have to appeal to metaphors to describe a particular taste or smell. And when we read descriptions of particular tastes or smells, we often, especially when less familiar with food culture, can do and associate little with the words we read or hear. I found this out when, some 15 years ago after starting to grow my own fruit and vegetables, I became interested in food not just as a means of 'refilling the engine' and not just as a means of 'socializing' (as

is often said of Mediterranean peoples), but as a way of enjoying different tastes, flavors, smells, and fragrances. During a trip to Scotland, my wife and I began to enjoy single malt whiskeys. Initially, the number of them and the language that we found in some of the standard reference books describing each were bewildering. But today, and in the context of the first part of this book, descriptions are perfectly fitting – not in the least because they allow us to understand a range of phenomena about knowing and learning. For example, we might find a particular single malt whiskey described along five key dimensions:

Color Amber.
Nose Malty, spicy, mint-toffee.
Body Remarkably soft and smooth. Medium to full.
Palate Distinctively clinging mouth-feel, with long-lasting flavour development. Both sweetness and spicy, peppery dryness in its malt character. Nutmeg and berry fruit.
Finish Lingering, smooth, aromatic, clean. (Jackson 1999: 33)

Readers unfamiliar with the culinary arts and the description of foods will immediately notice that something other than smell and taste opens this description of a single malt whiskey: color. Whether it is whiskey, wine, olive oil, or chocolate, the visual description is an integral aspect of the food. In fact, in haute cuisine, presentation is a most important aspect of assessing (e.g., by the *Guide Michelin*) and evaluating foods. In the case of malt whiskeys, the color may actually configure what the connoisseur can anticipate. When the whiskey is very lightly colored, it likely comes from the lowlands and may, frequently, be characterized by the taste of vanilla, which derives from the American oak casks that previously had held (for 1 year) sour mash whiskey (made from corn). It is certainly not going to be a whiskey that has spent some time in casks that had previously held red wine, sherry, or port, all of which give the whiskey a distinct, sweet, and sometimes almondy flavor.

In the above quotation, as in my own description, readers will note a descriptive language that associates *this* whiskey with smells or tastes of other food items. For example, on the nose, this whiskey is said to be ‘malty’, ‘spicy’, and similar to ‘mint-toffee’. In each case, it is not a description particular and singular to the whiskey but draws on other food experiences that *this* smell or fragrance is similar to. Moreover, a particular description is not singular to one specific whiskey but can be found to describe several whiskeys, even though I can clearly pick out the differences between the two and attribute them to specific distilleries. Even within a group of whiskeys – such as those that are produced on Islay (a Scottish island part of the Inner Hebrides) that are easily distinguished from other whiskeys because of their peatiness and smokiness – can be distinguished one from each other. Any verbal description misses what is singular about the whiskey that sets it apart so that connoisseurs can attribute it to a very specific distillery. That is, in the same way that timbre escapes description and yet allows us to recognize a speaker in the dark, there are aspects of smell and taste that allow us to make distinctions even where descriptions fail.

Following the entry ‘nose’, there is another one that may surprise novices, but that wine lovers already know: ‘body’. Why would a description of a food item

include a description of the body? Here I mean not the fact that something is solid or liquid, though 'oily' may indeed be a descriptor in this category. Other descriptions include 'light', 'rich', 'refreshing', 'soothing', 'satisfying', 'crisp', 'creamy', 'rounded', 'big', 'silky', and 'firm'. Body and texture, are invoked in the reference to texture and 'mouth-feel'. Reference to extendedness and (surface) texture may have been expectable when talking about the sense of touch rather than about the sense of taste and about how something feels in the mouth. But then the expression 'mouth-feel' transgresses and expropriates the description, clearly pointing us to the cross-modality not only of taste and feel but to the cross-modality of all senses. A recent phenomenological inquiry on the body does indeed connect the two senses, clearly grounding both in the experience of eating and drinking as something that requires our presence in flesh and blood: '"This wine has body": It puts into the mouth a thickness, a consistency that adds itself to the flavor; it lets itself be touched, caressed and rolled by the tongue between the cheeks and against the palate. It will not be content to slide into the stomach, it will leave the mouth covered with a film, a fine membrane or sediment of its taste and its tone' (Nancy 2006: 153). In this description, the 'body' of the wine is related to the feel, and the language clearly metaphorizes the language associated with the sense of touch. This should, perhaps, not be so surprising given that taste, too, requires contact, contiguity, and, therefore, contamination and contingency. We use the tongue to do with the wine what we might do with an object in our fingers, touch it, caress it, and roll it around so that the wine comes into contact with the different parts of the mouth. We do so, because there are different 'feels' or 'impressions' that derive from the same wine, whiskey, olive oil, or chocolate depending on *where* it falls in the mouth and *when* it does so. For olive oil tasters, 'punch' or 'punchy flavor' are characteristics that clearly draw on the cross-modality between taste and the tact.

In the preceding paragraph on the body, I refer to the different parts of the mouth. The palate is, strictly speaking, the roof of the mouth, the structures of bone and flesh that separate oral and nasal cavities. But palate is also the expression that refers more generally to the sense of taste. It is the seat of taste. Although the book on whiskeys relates mouth-feel to body, in this particular description the first adjective uses the same term in the category of palate. Here again, the cross-modality of the senses becomes apparent – and, therefore, the differences within the singular unit 'person'. The second descriptor, in addition to calling on embodiment and con/tact ('clinging'), is strongly associated with temporality, employing both the adjective 'long-lasting' and the noun 'development'. That is, taste is not just some fixed quality but there is a temporality to it that is characteristic of taste. We already encounter temporality in the course of investigating vision, which requires the eyes to move to see anything at all, and in tact, where the hand is required to move to sense what a surface texture feels like or to discover the shape of something. Other temporal descriptors, which also have to do with the movement of the liquid through the mouth may include 'starts malty (sweetish when water is added)), becoming fruity-spicy (mustard?), with notes of seaweed and salt' or 'starts gently. Big maltyness', 'starts sweet, slightly syrupy, and malty, then becomes nutty, developing a very fruity, Seville-orange character' or again 'As the palate develops, oily grassy, and, in particular salty notes emerge'.

Temporality enters tasting in another way: I know from experience, and know that this is experienced also by professional tasters, that our sense of taste is much better or different in the morning than in the evening. The ranges of impressions that I get when tasting an olive oil are more varied and more intense in the morning than in the afternoon or early evening. That is, the *when* of the tasting experience also contributes to its constitution, which itself involves and produces temporality.

We note that together with the temporal characteristics of the category of palate, we find descriptors that are also attributed to the nose, such as the malt character and spiciness. The taster has added nutmeg and fruits to the list of comparison items that describe this particular whiskey. In these descriptors, nose (smell) and palate (taste) come to have the same character, again pointing to a cross-modality, this time between the two senses under consideration. This character therefore is the same – as per the same description – and different – arising in distinct modalities – simultaneously. This might not be all that surprising once we know that there are openings connecting the nasal and oral cavities. We know that olfaction is integral to the pleasure of eating – foods tend to taste bland when we have nasal congestion or when we hold our noses. We know this to be the case from an experiment that many children have conducted or are asked to conduct is eating an onion while holding the nose.

Two further adjectives evoke sweetness and pepperiness of this whiskey. The novice may not notice this immediately, but these descriptors actually bring in the spatial nature of taste, as sweetness is generally experienced at the tip of the tongue whereas pepperiness is registered at the very back (an important aspect when tasting olive oils, where pepperiness is an important and distinctive characteristic). Saltiness tends to be a bit back from where we taste sweetness, acidity and sourness is tasted on the sides of the tongue, whereas bitterness comes behind. In order to sense the complexity of a drink or food item, all of these sensitivities are activated when the food *moves* through the mouth. Movement means that there are both spatial and temporal dimensions to the gustatory pleasures. In the case of olive oils, pepperiness is tasted last and sometimes becomes part of the *after*taste, the taste that is hanging on when the food item has descended the esophagus. (It has its equivalence in all the other senses as well, afterimage, ringing, or echo.) Here, again, we cannot avoid but note the inherently diastatic nature of the senses and experience, because *fore*taste and *after*taste are part of taste. Professional tasters often attempt to provide equal conditions by eating or drinking special foods between the different samples, such as the apples that allow olive oil tasters to neutralize or recalibrate their taste buds.

The final category in the whiskey descriptions used by this particular guide is that of ‘finish’. Even before looking at specific adjectives used, the very notion of ‘finish’ invokes the temporal nature of taste, which is not a singular quality but one that ‘develops’, ‘lingers’, is ‘quick’, ‘tingly surge[s]’, is ‘lively’, has ‘late [dryness]’, is ‘deceptively long’, is ‘restrained’, or is ‘disappearing’. These temporal adjectives are in addition to others that add a variety of flavors and odors that already appear in the other categories, such as those associated with lemon, lemon grass, peat, pepper, smoke, or herbs. The author suggests that *finish* is more than just *after*taste. Drawing on musical and thus auditory metaphors, he describes it the category as a ‘crescendo’ that is ‘followed by a series of echoes’ (Jackson 1999:

30). The recollection of taste that comes with the aftertaste further enfolds what is present with the non-present, making both non-overlapping moments of the same unit of experience. As in the preceding paragraphs, the very descriptions used point us to the non-self-identical nature of this sense, invoking not only synchronous cross-modality but also diachronic dehiscence.

Comparison tasting of food is a great way to develop the two senses involved, especially when the testing is done blind (-folded) so that we have no other clues as to the origin of the particular sample. Experiment with olive oils, single malts, wines, or whatever else you may like to eat or drink: I have organized sessions at my home, where we comparison tasted olive oils, malt whiskeys, chocolates, and wines. As the taste and olfactory capabilities of the appreciative person develop, the differences between run-of-the-mill foods and drinks and those of quality become apparent. The connoisseur will seek out single varietals or single estate oils and chocolates, because s/he will appreciate the distinct flavors that come with each. Thus, for example, most olive oils are mixtures of oils from different farms and use different varietals. This in itself does not have to be bad, as we know from the most expensive Bordeaux wines or Tuscan olive oils. Initially, a newcomer will likely find the descriptions bewildering, as I had done, and wonder what in their own taste the description refers to. But tasting and smelling food items may be likened to learning a sport or a craft, where we begin with gross motor skills before developing the fine motor skills that make the difference between the different levels of expertise from novice to highly skilled. Experts have been shown to do better, for example, in olfactory experiments even when the differentiation of their descriptive capabilities is controlled for.

An Experiment in Olfaction

> Smell is in some ways the most mysterious of all the senses, due to the rich, indescribable nature of smell sensations. . . . While there is something ineffable about any sensation, the other senses have properties that facilitate some description. . . . Smell has little in the way of apparent structure, and often floats free of any apparent object, remaining a primitive presence in our sensory manifold. (Chalmers 1996: 8)

After returning from harvesting blackberries in the warm summer afternoon, I decide to do a quick olfactory experiment to get myself attuned to what I wanted to write in these pages on the next day. On that very morning I had abandoned doing what I had intended, using four different kinds of mint for my experiment. But my chronic sinusitis had acted up and, partly because having a stuffy nose, I could not even think about doing anything that would be reasonable. Now, in the warmth of the afternoon, with lots of fresh fruit on my kitchen counter, I wonder what I will be able to pick out and what the experience might be.

There is the yoghourt pail full of blackberries, the newly baked bread, and the bowl of fruit and tomatoes picked earlier (Fig. 5.1). I draw in to get a sniff: the bread predominates. I move closer to the pail with the blackberries and take an

Fig. 5.1 A range of ripe and freshly baked (bread), gathered (blackberries, tomatoes), or ripe food items (peach, nectarines, banana) on the kitchen counter provide an opportunity for an investigation in olfaction that becomes the basis of epistemological reflections.

extended draw of air through the nose before moving on to the bowl. Before I know it, I have taken a few rapid sniffs moving from the banana across the tomatoes, to the peach ending with a final couple of sniffs over a nectarine. I stop and reflect. Without thinking much about what I am doing, I have only taken a very rapid sniff near the bread but have taken a long and extended sniff over the blackberries. As my nose moved over the bowl in a continuous movement, I have taken very rapid sniffs as my nose moves across the ensemble of fruit.

The first thing that strikes me about my own movement is the image of the sniffing dog. We do not normally associate sniffing with a human being – though the books in my library on tasting olive oils and whiskeys do indeed have photographs of tasters at work, sniffing a glass of the respective liquid. Sniffing, its different temporal extensions and frequencies, is integral to the experience of smelling out the differences between different products of the same kind – comparison tasting of olive oils, whiskeys, chocolates, or wines, in my instance – or of different type. Sniffs are quantized, discrete samplings. But they do not change the quality of the smell – the blackberries smell as intensely as they do when I sample them in short sniffs. In fact, a recent article in a special issue on the chemistry of smell asserts that there is general agreement about the fact that the ‘sniff is as integral to olfactory perception as the eye movement is to visual perception. Just as oculomotor adjustments during the smooth pursuit of a moving object are an active process intimately tied to visual perception, so do the muscles regulating the sniff make constant adjustments to sniff volume and duration in response to the stimulus. Just as deviations in eye position can distort visual perception, so do deviations in nasal airflow distort olfactory perception. The sniff is as integral to olfactory perception as the eye movement is to visual perception. Just as oculomotor adjustments during the smooth pursuit of a moving object are an active process intimately tied to visual perception . . . so do the muscles regulating the sniff make constant adjustments to sniff volume and duration in response to the stimulus. Just as deviations in eye position can distort visual perception, so do deviations in nasal airflow dis-

tort olfactory perception' (Mainland and Sobel 2006: 181). Aristotle already recognized the importance of the sniff, as he understood that 'when not inhaling but breathing it forth or checking it, [man] has no sense of smell, no matter whether the object be far away or close at hand, nor even if it should be placed on the inside of the nostril' (Aristotle 1889: 111).

In the preceding chapters, we note that perception would be impossible without the movement of the body and eyes with respect to the objects perceived, the movement of hand and fingers across surfaces to sense their consistencies and shapes, and the movements that allow hearing to take place. In this chapter, perhaps unsurprisingly, we find that the movement is also a requirement for the senses of taste and smell: of food matters through the mouth and fragrant air through the nostrils. But the movements are of different types and the sense of smell derives from an overlap of the different active and passive movements of air through the nose and the movement of the nose through physical space. For example, in the movement of my nose over the kitchen counter, landscape (i.e., the distribution of foods) and 'smellscape' (i.e., the distribution of odors) come to be overlaid. But they are not identical, as the smell of one item still lingers while the second smell approaches. There is therefore a clear sense of spatiality associated with smells, associated with the distance from a single source – approaching the kitchen will intensify the smell of fresh bread – and across the kitchen when different, strongly scented products are co-present. The spatial movement of the nose is associated with a change in smell, whereby a particular smell becomes strong and prominent whereas another fades out. Fading in and fading out as we get closer or farther away is associated with a change in smell; and changes in smell are associated with changes in distance or orientation (e.g., if I turn my head, a particular odor will be less dominant).

I later ask: Why are there rapid sniffs as my nose moves the first time over the bowl and in an unreflected manner? I return to the bowl and, slowly drawing air in, move across it. There is a 'strange' blending, as if watercolors were running into one another. The two odors co-exist but are not ordered in terms of succession: 'They have a unity of homogeneity, but that is not yet order' (Husserl 2001: 182). Nevertheless, there is an order (of change) that is independent of the content, the odors that blend together. I give it another try, holding the peach and banana next to each other and, while enacting a single long draw, I move the nose across. Again, there is a transformation from the green banana smell to the ripe peach blending into each other to give a strange sense of odors 'bleeding' into each other. I do the same for the bread and the peach – and again, there is a sense of 'bleeding' fragrances. When I sniff rapidly across the different food items, there is change, too, but now the smells seem to be separated into parcels, associated with distinctions of the objects as these pass by below the nostrils. There are two experiences that are of epistemological interest. On the one hand, rapid sniffing gives rise to different units of smell, first the 'green banana' then the 'ripe peach'. On the other hand, the change from 'green banana' to 'ripe peach' that occurs as part of the long continuous draw constitutes change itself. This is a sniff unit that is non-self-identical whereas the preceding experience gave different units that replaced each other. In one instance, change is the difference between different units, whereas in the other instance, change is embodied in the same unit. This same unit, differenti-

ated within itself constitutes a new order: expropriation. It is because odors change that we perceive odors, and when they do not change we do not perceive them such as the characteristic smell of our own home. When sniffing rapidly, change is the result of the concatenation of sniff-units that differ, much like the illusion of movement is produced when a series of photographs is played sufficiently in succession to give the impression of a moving image. But this movement is not *internal* to the phenomenon, it is the result of an animation by the movie projector – software – projecting frame after frame at a rate sufficient to produce the illusion of *continuous* movement. In the other case, the change is not the result of concatenation of units but is internal to the unit itself. That is, when we learn through a smell, there is an inherent movement that we need to understand as constitutive to the process of learning.

This exploration actually allows us to make a connection to learning generally. In learning theories, the dominant approach is to theorize learning as the difference between knowledge as measured prior to and following an intervention (e.g., a unit, a curriculum). How this difference is produced is much less clear, and the going psychological theories talk about construction, on the one hand, and on the efforts by the teachers to motivate students, explain subject matter, and so on, on the other hand. In a very different approach, theories concerned with the cultural-historical nature of activities and social practices, the fundamental units are non-self-identical and embody change. In the former view, knowledge is static unless something changes it during some special period. This is a difference 'between a view of knowledge as a collection of real entities, located in the heads, and of learning as a process of internalizing them, versus a view of knowing and learning as engagement in changing processes of human activities' (Lave 1993: 12).

Apart from the physical movement, there is a second kind of important movement: that of the air flowing through the nostrils. These speeds differ: they are sometimes long and extended, at other times brief, saccadic intakes that one might have observed with dogs but that I have observed myself to enact. It is in fact the rapid sniffing as the nose moves sideward that allows the scent to change from the odor of a somewhat green banana to the nectarine, peach, and another nectarine. Each sniff is like a sample, and it is precisely this sampling rate that allows the *differentiation* of the smells as my nose moves over the bowl of fruit. Within the sniff-unit, the distinctions are too small to be noticed, which allows us to experience the unit as one category and, therefore, gives rise to the illusion of the self-identity of 'basic elements' of our experience.

Following the first reflection on my smelling experience, I return to the bowl with fruit to give it another try. There is no need for re-doing the bread. Its smell is so predominant throughout the room. I return to the blackberries to figure out what is so special about this deep, intense odor, which is also sweet, and I cannot help but think about as the 'black fruit' characteristic that we associate with fruity, American and Canadian West Coast wines. I stop over the banana for a while, re-sampling it repeatedly by taking rapid sniffs, while thinking about what it is that made me think of 'green banana' rather than 'ripe banana' or some other descriptor. I remember: On the day before, I had used an overripe banana in a smoothie, and the scent was distinctly different. Although this was a different banana in front of me, I envision it to have a similar trajectory through 'smell time', which would

make the 'same' banana smell differently in the course of its history on the kitchen counter. In fact, it would not be 'the same' banana, as it is precisely the chemical changes that give rise to the different odors over a period of day. This is an interesting exercise in ontology and epistemology, where our culture would identify these physically (hard to soft, green to yellow to black) and chemically (different odors, taste, feel) different entities not only by the same name but also attribute to them something like an 'identity' across the clear changes these entities undergo. There is therefore an inner continuity that (potentially) links different experiences. This inner continuity and thus unity of the material content 'is in the first place rooted in the most original continuity of temporal extension. All continuity with respect to content . . . is the unity of a continual fusion passing from phase to phase; but the content can only meld together continually in the continual process of becoming in the order of time' (Husserl 2001: 188).

There are other temporal dimensions as well, one deriving from the physical movement of the nose across the 'smellscape', the other associated with the temporality of the sniff. Whether short or long, a sniff is extended in time; and it is separated into parcels that arrive at different times and rates.

Smells can be remembered. I recognize the typicality of the ripe peach *as* ripe peach, associate the scent of the nectarine with the plums on the tree in front of my office window that are not yet ripe (thus, because I am writing during the month of August, this memory of my plums goes back at least to the preceding year), and compare the different smells of the two bananas, the sniffing of which was separated by a day. Changes in smell over time, therefore, are constitutive of time itself: change. Our understanding of time is deeply intertwined with the changing of smells from the sweet smell of a baby to the stench of death. We may smell the flowers of a peach tree, which later changes to the barely noticeable odor of the unripe peach, which subsequently exudes a heavy, inebriating smell of ripe fruit, before it changes into the putrid smell associated with becoming foul. Thus, '[t]ime in its course binds together the earth and the laboring hand of man; man creates this course, perceives it, smells it (the changing odors of growth and ripening), sees it. Such time is fleshed out, irreversible (within the limits of the cycle), realistic' (Bakhtin 1981: 208). We also know that there are particular smells associated with the different seasons of spring, summer, fall, and winter. There are different smells available on a hot summer day versus on a summer day following an infrequent rainfall event. Once gain, our very understanding and sense of temporality is shaped by smells that are associated with the stages, progressions, seasons, and developments of life.

As my nose moves across the fruit bowl, I detect differences between the peach and the nectarine – even though textbooks will say that they are from the same species but constitute a different cultivar group that differs in one gene coding for the difference in skin type: fury and smooth. Yet whereas the peach, in this case, has a clear and unmistakable fragrance of a ripe peach, the nectarine has less of this fragrance with an admixture of a ripe yellow plum, such as the ones growing in my garden. I take the two fruit into my left and right hands, respectively, sniffing first one, then the other. I turn each fruit around wondering whether they will smell differently at different places – including the slightly damaged spot on the nectarine where it has started to brown. But in each case, sniffing turns out to re-

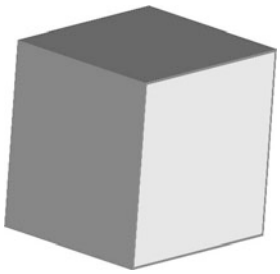

Fig. 5.2 A cube in the manner geometry theorizes it never is experienced. It always only presents one aspect against all the others possible – in vision as in tact.

turn a constant smell independent of the orientation. When I make a fruit salad on the following day, I open up each of the two fruit to compare them again. The smell on the inside is the same as on the outside. The upshot of this investigation is that there are no hidden aspects to smell in the way I report them in a recent book on the visual and tactile experiences with cubes in a second-grade mathematics classes. Whereas inside and outside clearly are distinguished by the senses of vision and touch, the fragrances of the two fruit remain the same when I open them up. In the case of vision and touch – as Merleau-Ponty already suggests – there are different views and knowing a cube means that we know what happens to the perspective when we move around the object or move the object itself. Similarly, the cube is never given to touch in its entirety (Fig. 5.2): we do not (consciously) experience – i.e., see or touch – the 8 vertices, 12 edges, and 6 sides simultaneously. Here it is important not only to think of the hands touching eight vertices, which, if the cube fits the hand, can be felt. Rather, it is the 'nature of eightness', 'twelveness', and 'sixness' that we cannot experience – apart from the fact that whatever we experience never is a geometrical cube, as any real cube is but a natural object of the kind that historically has given rise to the idea of a cube with certain properties that in the natural world cannot ever be realized. The experience of a cube is given us in a *succession* of sensations, a finding reified in recent neuroscientific research on the neuronal patterns in the representation of space around us (Rizzollatti et al. 1997).

The result of sniffing out the peach and nectarine also shows that there is no differentiated fine structure to the smell of each: the smell is given at once and as a whole. That is, whereas we may shift attention in other senses to move from coarse to fine structure – e.g., the shape of the handle versus its surface characteristic investigated in chapter 3 – the same is not what we find in the case of the sense of smell.

Related to our engagement with objects of consciousness, Husserl (2001) notes that we *are affected by* them: a particular colored figure may come to affect us, becoming dominant in our consciousness, and this attention is a function of both consciousness turning toward the object and the object's aspects that surreptitiously demand for and appeal to our attention. With respect to sounds, it may be the noise from a passing car or the notes from a song that affect us, bringing the object to prominence and, in turn, contributing to the becoming prominent. In the case of smell, 'prominent odors' have the same function as 'particular colored fig-

ures' or certain sounds that become prominent because we turn to them, but we turn to them because they have been more prominent among all the other possible sensations in the respective sense modality. The phenomenon of affection is understood as 'the allure given to consciousness, the peculiar pull that an object given to consciousness exercises on the ego; it is a pull that is relaxed when the ego turns toward it attentively, and progresses from here, striving toward self-giving intuition, disclosing more and more of the self of the object, thus, striving toward an acquisition of knowledge, toward a more precise view of the object' (ibid: 196).

In the case of smells, however, there is more than the affection of consciousness. We may indeed pursue a smell that stands out, attempt to understand its source and effects. But above all, we tend to be emotionally affected by smells, turning toward or away from them. We tend to find smells disgusting (decaying bodies of road kill, farts), intoxicating (certain perfumes), or enticing (perfumes, food [e.g., smell of fresh bread]).

The sense of smell also raises the question whether there are *re*presentations of smell. I may think of my office at the university and can visualize it: the shelves with the differently colored books, the two desks, windows, video, table, and chairs. But is hard to 'visualize' its odors – without confusing stuffiness with a university office, the wall-to-wall carpets, and the humidity and dust that it tends to harbor. Clearly, I *re*cognize smell, as the present inquiry shows. *Re*cognizing, however, does not require representation, as this sense of having smelled, seen, felt, heard, or tasted before depends only on a reactivation of prior sensations, which in fact constitutes the immanent knowing of these sensations. Representation means that I can activate the sense in the absence of the smell. But the fact that we associate smells with independent objects, that is, their relation to particular kinds of objects, points to a degree of cross-modal support in representational activity. I may not be able to actually generate the smell of lemon, but I can *anticipate* the different odors that will be in my nose when I go to the different types of mint in my garden. If I smelled different mints in a blindfolded experiment, I would be able to say from which part of my garden the mint came.

Coda

The preceding investigations show that there is something bodily to these senses, which require the person to be right up next to their phenomena, as in touch. Both taste and smell are integral to our experiences in the world, being associated not only to the affective dimensions of experience – as if these could be separated from experience as such – but also to our understanding of space and time. If I know that I have to turn to diminish the intensity of a smell that I do not like, or cover my nose, this is so because there are *internal* connections in knowing related to movement and orientation in space, on the one hand, and smells, on the other hand. There is not some cognition of space independent of the cognition of smell. The two are integral parts of knowing so that there is an *inner* connection between these two, as there are inner connections between any combination of sense modalities and cognition.

Idealist, metaphysical epistemologies and classical psychology – which have given rise to constructivism – have little place for sensual experiences, especially those of taste and smell. This lack of appreciation goes far back in the history of ideas, and was clearly articulated in idealist aesthetics: 'the sensual of art only concerns the two theoretical senses of vision and hearing, whereas smell, taste, and touch are excluded from the artistic pleasure. For smell, taste, and touch are directly associated with the material as such and with the sensual qualities thereof; smell with the material volatilization through the air, taste with the material dissolution of substance, and tact with heat, cold, slipperiness, and so on. Because of this, these senses cannot be related to the objects of art, which are contained in their real independence and do not admit a mere sensual relation' (Hegel 1835: 51–52). The investigations in this chapter show that these two senses contribute to the constitution of those experiences that tend to be thought of as being more important to cognition, especially in mathematics and science, such as space and time (which Kant was taking as a priori to experience).

I find it interesting about senses that are not as common as others (e.g., touch, sight) that their investigation can teach us a lot about the limitations of the metaphors that we use for understanding knowing based on the dominant senses. In fact, there may be much common sense and unscientific understanding underlying how we think about knowing and learning because we over-generalize from the experiences of touching and seeing. In the philosophy of the sciences, this has led to a questioning of the visual metaphor, according to which mind and knowledge were simply mirrors of nature. Sight and touch experiences continue to be the dominant resources in the epistemology of the educational sciences. Investigations of taste and smell may actually assist us in rethinking some of the misconceptions that continue to dominate the research on knowing and learning.