

## Sensation and Taste in Lucretius

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In Book 6 of his *De rerum natura*, Lucretius proposes to explain magnetism, the attraction of a ring of iron to a lodestone (998ff.).<sup>1</sup> Before he does so, he presents a series of preambles, to clarify the physical conditions or the laws of physics on which magnetism is based. First (921-935), he repeats a paragraph from Book 4 (216-229)<sup>2</sup> in which he had summarized his theory of the operation of *simulacra*, the effluences or films emitted by sense objects which end up working upon the *sensoria*.<sup>3</sup> Next (936-958), Lucretius talks about the permeability of bodies, the pervasiveness of void and the availability of minute passages that permit bodies to absorb the bombardment of these effluences. Third (959-978), he declares that identical effluences, *omnia quae iaciuntur corpora cumque ab rebus*, may prompt differing and even contrasting responses in the receptors. And fourth (981-997), though this might have come earlier, the passages through which the films enter are said to be of various conformations, to allow or hinder their entry.<sup>4</sup> It is against the background of a complex of ideas formulated earlier to help explain the phenomenon of sensation, namely that the whole world is aswarm with radiation, streams of external bodies admitted and

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<sup>1</sup> I cite the text of Lucretius from the 5th edition of Josef Martin (1963). — It is a special privilege to share in this tribute to Abraham Wasserstein, that most humane and, through the kind agency of Mrs. Wasserstein, most hospitable of scholars, and the author, in 1978, of a hard-hitting paper on Epicurean science.

<sup>2</sup> For good remarks on repetition in Lucretius, see Clay 1983.182-185.

<sup>3</sup> The notion of effluence was anticipated by Empedocles and Leucippus and Democritus; the term used is ἀπόρροια or ἀπορροή. See Bailey 1947.1180-1181. Aristotle, *De sensu* 3.440a15-17 and 5.443b1-2, vigorously protests against the idea of ἀπόρροια; Theophrastus, among other students of Aristotle, re-adopts the effluence-theory: Sedley 1985.205-206. Cf. also the exhalations, ἀναθυμιάσεις, which are a common theme of meteorological and other accounts.

<sup>4</sup> I use the term “effluence” when the focus is on the process of emission of the *simulacra*, and “film” when it is on the arrival of the structured replicas or extensions of the source-object. The sensory passages are themselves structured (*DRN* 6.981-983); they cannot be merely, as Kleve 1963.54 note 1 suggests, “die leeren Zwischenräume zwischen den einzelnen Atomen des durchdrungenen Körpers”. But given the Epicurean assumption that a στερέμνιον consists of void and a vast number of atoms, it is difficult to decide whether it is the position and shapes of the atoms that determine the structures of the passages, or whether it is the passages that prompt the positioning of the atoms.

apprehended by receptive bodies, that Lucretius sets out to solve the mystery of magnetism.

It is a conclusion that follows logically from the Epicurean understanding of the nature of the universe, though Empedocles (A 89 D.-K.) had anticipated the insight. All is atoms and void; physical bodies, *στερέμνια*, are nothing but aggregates of atoms and void. Atoms are in constant motion within bodies, but if bodies are to have any relation with one another as bodies, there must be atomic motion outside the bodies as well, and some of this external atomic motion, Epicurus' *ἔξωσις*,<sup>5</sup> originating from the motion within, *πάλσις*, will replicate the structure of the bodies, as effluences. Neither Epicurus, as far as we can tell, nor Lucretius spells out fully the logical force of the theory. The indispensability of effluences, like so much else in their physics,<sup>6</sup> needs to be recovered by reading between the lines of the explicit doctrine. Indispensability shades off into profusion and redundancy: the *sensoria* are incapable of picking up more than a small quantity of the effluences (4.794-804). Not only individual entities, including the moon, but large conglomerates, including the cosmos as a whole, broadcast effluences.<sup>7</sup> Lucretius' extraordinary openness to the world of the senses<sup>8</sup> provokes him to assign a major role to the authority of effluences all around us. One critic nicely recognizes a dimension of the effluences that might appeal to a poet advocating a new freedom: "... the motif, often cited and varied, of the emergence, from an occlusion both sheltering and constricting, into the freedom of open space."<sup>9</sup> But release, liberation, is as I hope to show an appealing yet ultimately illusory aspect of the discharge of *simulacra*.<sup>10</sup> The *simulacra* are so closely bonded to their source-objects that their emission can never be a realization of freedom.<sup>11</sup>

<sup>5</sup> See Arrighetti 1973.584-587, on [24] 43. *πρὸς κατεργασίας* in *Herod.* 46.4 refers to the work of the *πάλσις* as originator of the effluences.

<sup>6</sup> Cf. the argument of Wasserstein 1978, that Epicurean science is characterized by arbitrary moves. For a similar view, see Lee 1978.52-53.

<sup>7</sup> Cf. Epicurus, *Pyth.* 110.8 and 89.6.

<sup>8</sup> Highlighted by West 1969.

<sup>9</sup> Eyslein 1992.32; my translation.

<sup>10</sup> In the present paper I will abstain from taking up three controversial terms attached to the Epicurean doctrine of effluences, *viz.* *πύκνωμα*, *ἐγκατάλειμμα*, and *συνίξησις*. A determination of their precise meaning, still unsettled, is not crucial for my theme.

<sup>11</sup> A source-object, what Lucretius at 4.22 calls *suam rem*, may be an atomic aggregate, *στερέμνιον*, or one of its parts or properties. We see either the sea, or the blue color of the sea; we hear a person, or a voice, or the timbre of the voice; we smell a cigar, or the Cuban aroma. Lucretius pays only occasional lip service to Aristotle's distinction between proper, common, and accidental *αἰσθητά*. Sextus *Adv. Math.* 7.207, in restricting vision to color rather than the colored object, and locating the color in part outside the object, misrepresents the Epicurean evidence, even though this may reflect a rough understanding of the plasticity of the object discussed below.

Even iron, Lucretius now claims, with its “bleak, bristling toughness” (6.1011: *validi ferri natura et frigidus horror*), emits effluences, as does the lodestone opposite it, effluences so powerful that they dispel the air and enlarge the vacuum between them, with the further consequence that the air behind the iron, pressing upon it and streaming into its passages, propels it into the enlarged vacuum. That iron sends out effluences, and has passages within it, is no more surprising than that stone does. The emission of *simulacra* from stone has in fact been implied on an earlier occasion (4.265-268), when Lucretius asks why it is that the eyes cannot register the impact of a single visual film; only a stream of them can produce the perception of the source-object. After citing the impact of wind upon us as an analogy, Lucretius tops the comparison with what we feel when we hit our toe on a stone: we feel not the surface of the stone, but what is deep within it.<sup>12</sup>

*verum magis ipsam  
duritiem penitus saxi sentimus in alto.*

We touch the surface of the stone, but what is perceived is the hardness deep within the stone. But that, distant as it is from the *sensorium*, can register on the flesh of the toe only, we presume, if there are films to transmit the message. In the discussion of magnetism Lucretius does not concern himself with sensation, nor does he say of the films of iron and stone that they enter into the passages of their opposing bodies. For once, on this occasion, only the air does this. On the grounds that all bodies emit their specific effluences, it might well be said that what enters into the passages of the iron is films of air, though it would be difficult in practice to distinguish between the air itself, as a material body, and its effluences.

If we look carefully at the first preamble to Lucretius’ treatment, we note that the initial three lines (6.921-923; cf. 4.216-217) are devoted to sight: all the things we see without exception (*necessesit*) discharge and disperse bodies that strike the eyes and provoke sight. But as the preamble continues, the area over which effluences are shown to be operative is widened to include odor (924, 933), sound (927, 933), chill (925), heat (925), vapor (925-926), and flavor (928-929, 934). In this list, which covers all the canonical senses, chill and heat, and perhaps vapor, must be counted under the general heading of touch. At least some kinds of touch, it seems, or perhaps all touch as interaction between atomic compounds moving in the void, may be interpreted as the operation of effluences. Toward the end of the paragraph (935, 930-931), Lucretius reasserts the universality of this phenomenon over and beyond the realm of sensation: from each entity a specific effluence streams and flows and is dispersed everywhere in all directions nor is there ever a stop to this flow.<sup>13</sup> That flavor, *sapor*, should be

<sup>12</sup> *Simulacra* from deep within the source-object, Lucretius says on several occasions (e.g. *DRN* 4.90-94), take circuitous routes (cf. below, note 43). This seems to me to cast doubt on the view of Kleve 1963.<sup>13</sup> that touch is the sense most assured of ἐνάργεια because it involves unobstructed contact with the source-object.

<sup>13</sup> Cf. also *DRN* 4.127-128: the world is full of *simulacra* moving about indiscriminately. Note the mention of (the taste of) bitter wormwood, 124, in the context of a paragraph on effluences.

included in the list of effluences (cf. also 986) will not cause surprise; taste is a sense which can easily be imagined to be due to a stream of effluences arising from the nourishment tasted and invading the passages of the tongue and the palate. The effluences of flavor travel only a short distance, but within the Epicurean world picture even short distances are, microscopically or cosmologically speaking, vast expanses of void and atoms. In any case the example of the toe striking the stone shows that effluences need not come from the surface,<sup>14</sup> a lesson that is confirmed also by what Lucretius has to say about the light and the warmth of the sun (4.199-201):

... *penitus corpuscula rerum*  
*ex altoque foras mittuntur, solis uti lux*  
*ac vapor ....*

But when we turn to the passage in which Lucretius takes up the subject of taste in its own right (4.615-672), he appears to be saying something else. He presents a graphic picture of chewing the food and extracting the flavor (*sucus*), which is distributed through the passages of the tongue and the palate, but no further, except of course to the *anima* which participates in the process of perception.<sup>15</sup> When the *corpora* of the flavor are smooth they caress the tongue and the palate, when they are rough they savage them. *Sucus*, the Latin equivalent of the Greek *χυλός* and *χυμός*, "juice", is one of Lucretius' words for "flavor" or "aroma".<sup>16</sup> Another is *sapor*, which on a very few occasions may also mean "taste", i.e., the sense responding to flavor. In the present passage Lucretius prefers the concrete *sucus* to the more abstract *sapor* because he is detailing the distribution of the flavors into the appropriate passages of the *sensoria*.

There is no mention of moisture. It is interesting that in his exposition of taste and flavors, Lucretius talks only of food, and not of drink,<sup>17</sup> which contrasts with Aristotle's observation that the *ἀρχή* of taste is τὸ ποτόν (*De anima* 2.10.422a21). We do not know whether this is due to what Lucretius found in Epicurus' discussion of taste; we do not have it. If Lucretius wanted to show that taste differs from the other senses in not involving the operation of films, drink

<sup>14</sup> Cf. also *DRN* 4.73, 90-97, 694ff.; and Bailey 1947 on 4.239-268.

<sup>15</sup> Lucretius does not adopt Aristotle's view (*De sensu* 2.438b30-439a4; cf. *De anima* 2.11.423b22-26) that the sensorium of touch and taste is the heart, and that tongue and palate form a μεταξύ analogous to the air in the case of sight. — I am skeptical of the view of Kleve 1963.19 that in the process of sensation the work of the soul is prior to that of the physical organ. *DNR* 3.238ff. is about the soul empowering the sensory capacity of the limbs and organs, and not about the sequential order of an act of sensation. For the empowerment, cf. *Herod.* 64.6-10. The translation of σύμπτωμα αἰσθητικόν in Long-Sedley 1987.1.66 and elsewhere as "accidental property of sensation" seems to me problematic. Epicurus is stressing the mutual reinforcement of soul and the "covering bulk"; σύμπτωμα here probably equals, more literally, συνέμπτωσις, the coincidence of their functions.

<sup>16</sup> At *DRN* 6.986-987, *suci* = flavors parallels *odores* = smells. For the Greek terms, especially in Theophrastus' *De caus. plant.*, see Einarson and Link 1990.201 note 2, and Sharples 1985.184.

<sup>17</sup> But see *DRN* 2.398-404; 1.936ff. = 4.11ff.; also 4.223f. = 6.929f.

would have served him better since in drinking taste is immediately available, without the act of mastication. Without chewing, Lucretius seems to think, flavors do not materialize. Chewing, as it were, extracts the flavors so that they can be absorbed. Commentators, swayed no doubt by the image of water being pressed out of a sponge (4.618-619), mistakenly translate the *sucus* drawn from the food and flowing *through* the *foramina* of tongue and palate as “juice”.<sup>18</sup> What the chewing liberates is the flavor; only flavor can enter into the appropriate mini-passages.<sup>19</sup>

In what follows (633ff.), Lucretius wonders why one creature’s food is another’s poison, which is equated with the notion that what is sweet for one is bitter for another. The answer given is that all things have all manner of *semina* in them (644), and this is true of both food and consumers. In the latter, the “difference in the shape of the component particles must result in the difference in the shape of the intervals and the passages between them” (649-650).<sup>20</sup> One creature’s disposition (*positurae principiorum*, 667) may cause it to respond primarily to the smooth *semina*, another will be more receptive to the rough *semina*, both of which are to be found in the same food. Since the disposition of the *sensoria*, tongue and palate, may vary with the state of health of the eater, the receptiveness to the shapes of the *corpora* is bound to undergo changes. Taste, in other words, is relative, like all sensations and perhaps even more so, though of course it is also always truthful in the sense that the *semina* or *corpora* tasted induce a correct reading.<sup>21</sup> There is no trace in Lucretius of Lucullus’ view, in Cicero’s *Academica* 2.20, that taste and smell are less dependable than sight.

Now it will be noted that the references to *sucus*, flavor, come to an end early in the sequence. After 4.627 the talk is all of *cibus* and *semina* and *corpora* and their shapes, and the *foramina* into which they fit, and the primary qualities of flavor: bitter and sweet, corresponding to the shapes of the *corpora* and the ease or difficulty with which they accommodate themselves to the passages. The discussion is severely physical, reminding us of the dissemination and embedding of *corpora* featured in the analysis of magnetism and in the exposition of sight and hearing. But nothing is said about streams of effluences, and so most critics, assuming that *semina* and *corpora* designate atoms and nothing else, have concluded that in the case of taste Lucretius envisions a direct contact between the object and the *sensorium*.<sup>22</sup> The honey on the lip of the cup (for

<sup>18</sup> Bailey on *DRN* 4.615 recognizes that at *DRN* 2.845 and *DRN* 3.223 *sucus* must be taste, or flavor as I prefer to call it to distinguish it from taste *qua* sense function.

<sup>19</sup> At *DRN* 4.615-616, reading the mss. *hoc* with Martin, I propose to translate as follows: “tongue and palate, with which we apprehend flavor, exercise a little more control and work a little harder (than is the case with hearing)”. Unlike the ears, which do their hearing willy-nilly, the tongue and the palate have an option over whether or not to taste, and, with the help of lips and teeth, need to invest some work in the operation.

<sup>20</sup> The formulation is that of Bailey 1947 on *DRN* 4.649.

<sup>21</sup> Cf. also Plutarch, *Adv. Col.* 5.1109C.

<sup>22</sup> For direct contact, see Bailey 1947.1179 and 1253, Luschnat 1953.21, and Asmis 1984.105. Furlley 1993.84-86 reports that Giussani and Bailey favor the same

once, no chewing here) is said to be sweet because the tongue is in immediate contact with it, and no intermediary is necessary to account for the flavor. But in the light of the toe stubbing the stone, the recourse to touch fails in its purpose.

At this point, a paragraph on terminology will be helpful. In the preambles to the chapter on magnetism, 6.921ff., both the source-object and the effluence are called *res*, whereas in the subsequent discussion the effluences from the stone are called *semina*, and those from the iron *primordia* and *corpora*. In the general language which concludes the main discussion (1034-1041), the objects of which the iron and the lodestone are representatives are called either *corpora* or *res*. There is thus no rigid distinction between the terms used to designate source-bodies and the terms used to designate effluences. Nor, and this is equally important, do we find a clean demarcation between terms identifying atoms and those signifying effluences, with the result that critics often talk of atoms where effluences are meant. Terms for the latter, in addition to *simulacra*, *res*, *semina*, *corpora*, and *primordia*, include *corpuscula*, *exordia*, *elementa*, *membranae*, *imagines*, *formarum figurae*, and *formarum vestigia*.<sup>23</sup> (Cicero, *Ad fam.* 15.16, adds *spectra*.) That the nomenclatures of atoms and effluences converge is not surprising in that effluences are thin constellations of atoms activated by the *πάλσις* within atomic compounds (Epicurus, *Herod.* 50.4). The richness of the language about effluence is one indication of the importance Lucretius accords to it, and of the degree to which it energized his poetic imagination. Lucretius is likely to have coined *simulacra*, the standard term, to correspond to Epicurus' *εἶδωλα*, a term which in Epicurus is largely restricted to the effluences and films of sight and intuition, though at its first mention, *Herod.* 46-48, the application to sight is held back, and Plutarch, *Amat.* 766e, suggests that *εἶδωλα* can be a factor in the sex act, which would associate them with touch and hearing and smell as well as sight. Likewise *simulacra* are not confined to films originating from surfaces, and thus cover all senses. Even *imago* can be used of non-visual films: note *imago verbi*, 4.571, analogous to *primordia vocum*, 4.531. By the same token Epicurus' usage is not confined to *εἶδωλα*; his

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position. Furley himself finds "it more likely that Lucretius (i.e., Epicurus) does not make this radical distinction between taste and other sensory objects". In fact Giussani 1921 and Bailey 1947 are uncertain; usually they argue on behalf of direct contact, but now and then (Giussani 178 and 221ff., Bailey 1208 and 1256ff.) they allow that effluences may play a role in taste also. For flavor coming to us through effluences, see Brown 1987.21-22.

<sup>23</sup> Cf. Giussani 1921.3.155, on *DRN* 4.42-107: "Lucrezio, che non ha una parola tecnica per *εἶδωλα*, cambia, anzi moltiplica la parola ...". In the light of Epicurus' own use of a number of terms for effluences, it may be doubted that he himself had a narrowly technical language for them. It is certainly not the case that *simulacra* or *εἶδωλα* refers exclusively to visual effluences, though vision is the standard sense in both authors, the sense which is discussed first and which furnishes its parameters to the other senses. Cf. the remarks on the "optical model" for talking about atoms and *eventa* in Wardy 1988.125. For Democritus, according to Theophrastus *De sens.* 63-72, taste furnishes the paradigm for the relativity and materiality of all senses.

other terms are *ρέύματα*, *ρέύσεις*, *ἀπόρροιαί*, *ἀποστάσεις*, and *τύποι*, with *ὄγκοι*, originally “blocks” or “masses”, playing an auxiliary role: *Herod.* 53.10.<sup>24</sup>

By way of an interim summary let us say that Lucretius’ analysis of sensation is indebted to a number of assumptions that in the end do not sit well with one another. First, he assumes that there is an elective affinity or disaffinity between the atomic structures of films and the passages at which they are aimed. Example: 2.683-685; cf. 4.595-614 and 706-721. The films of sight are aborted by angular passages which the films of sound have no trouble passing through.<sup>25</sup> Second, he uses language appropriate to the shapes of atoms to designate the constitution of their aggregates, i.e., films.<sup>26</sup> Examples: 2.393-397, and 410-430, where sounds and smells and sights *and tastes* are identified with the shapes of atoms. For their entry into the passages he distinguishes between films that are smooth and films that are hooked or rough, and concludes that the smooth films fit into one kind of passage and the rough films into another. Example: 6.981-997; cf. 4.643-672. This contrasts with the rival assumption that both kinds of films fit into the same passage, but that when smooth films enter into a passage the effect is pleasant, while when a rough film enters into the same passage the effect is unpleasant: 2.398-443.<sup>27</sup> With his ascription of atomic shapes to films it is likely that Lucretius has recourse to a synecdoche, triggered by the tenet that atoms are the building blocks of effluences. But the move opens the door to uncertainties; as the atomic theory is made to clarify the process of sensation it burdens the language about effluences with a catachretic use of adjectives.

The operation of taste cannot be fully understood without a further appreciation of the role of touch. Though Lucretius has a number of things to say about touch, touch is not, as it is in Aristotle, a separate sense, but underlies all the other senses.<sup>28</sup> Lucretius’ statement to this effect (2.434ff.), within the context of his discussion of atomic shapes, has a hymnodic inflection about it,

<sup>24</sup> For *τύπος* as effluence see also Diog. Oenoand. fr. 43. I in Smith 1992. Arrighetti 1973.497 on *Herod.* 46.2 is, I think, right in arguing against a recognition of different aspects of effluences in *ἀποστάσεις* and *ἀπόρροιαί*. For *ὄγκοι*, see Bailey 1928 App. iv.

<sup>25</sup> What precisely is the meaning of *renutant*, *DRN* 4.600? “Make it through unsteadily” rather than outright “refuse”? This would help to account for clouded vision.

<sup>26</sup> This was seen by Giussani 1921, Appendix II on *DRN* 1.599-634: Lucretius “*abbia confuso atomi e molecole*”. Lucretius had precedent for this. In Theophrastus’ report of Democritus’ explanation of flavors, *De caus. plant.* 5.1.6ff., shapes are assigned to flavors rather than to atoms; also in *De sensu* 64-65 Democritus is said to have assigned more precisely differentiated shapes to the perception of flavors than to other senses.

<sup>27</sup> For the difficulties of this part of Epicurus’ theory of sensation, see also Fowler 1984.259-261, who refers to Plutarch, *Adv. Col.* 1109Cff.

<sup>28</sup> Cf. Schoenheim 1966. Contrast Aristotle’s protest against the physiologists identifying all sense with touch: *De sensu* 4.442b1-3. If we include touch and the *animus* or *mens*, the receptor of intuition, Lucretius counts six sensory faculties, or

*tactus enim, tactus, pro divum numina sancta,  
corporis est sensus . . . ,*

as if Lucretius himself were astonished, in the absence of a specialized organ of touch,<sup>29</sup> by the power vested in mere contact. Within human experience, he distinguishes between external contact, of a foreign entity (*res*) impinging, and an internal one, a tactile encounter within the human body. Either can be pleasurable or painful. But once the narrow limits of human experience are transcended, at the level of the cosmos, the distinction between external and internal loses its value. Touch is the meeting of atomic body with atomic body, no matter where it happens, and thus a phenomenon which goes far beyond the immediate area of sensation. Lucretius' *tangere enim non quit quod tangi non licet ipsum* (5.162) is a statement about physics more than about epistemology. The contact between iron and lodestone is such an event.

In the case of the human organism, Aristotle speculates that the flesh is the *medium* of the sensation of touch and the heart the ultimate locus of the *sensorium*.<sup>30</sup> In Aristotle, taste is both a separate sense and a specialized order of touch. Aristotle also feels that taste and touch are fundamental, and necessary for organic life, while sight, hearing and smell are, as it were, the luxuries of a developed organism.<sup>31</sup> We do not know Epicurus' view in the matter; a later Epicurean emphasizes the wide range of the properties apprehended by touch.<sup>32</sup> Lucretius' most revealing statement on the operation of touch comes at the beginning of the section on sight, 4.230-238. When something is touched, and the same thing is seen, touch and sight must respond to the same cause. In both cases that must be the *imago* of the source-object. Perception, *causa cernundi*, lies in *imagines*, and nothing can be seen without them. It may be disappointing that the final remark is about seeing rather than about sensation or perception in general. But Lucretius is here beginning his extended discussion of sight. In any case, in lines 234-236 he argues *from touch to sight* in asserting the indispensability of *imagines*, i.e. films.<sup>33</sup>

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κρίτηρια, as Epicurus would call them. Velleius' *non sensu sed mente*, *De nat. deor.* 1.19.49, warns us not to count the *animus* a sense precisely analogous to the others. But he does not distinguish categorically between the operations of films that work on the senses and those that work on the soul. In this he comes close to Cicero's Lucullus, *Academica* 2.30, representing the view of Antiochus: *mens ... quae sensuum fons est atque etiam ipsa sensus est.*

<sup>29</sup> But note that in some passing references to touch as a sense running parallel with other senses, notably *DNR* 4.486-488, the implication is that the hand is the organ of touch.

<sup>30</sup> *De anima* 2.11.422b17-424a16. In the *parva naturalia*, Aristotle comes closer to regarding the flesh itself as the *sensorium*.

<sup>31</sup> See Jürss 1991.59. For the similarities and differences between Aristotle's and Epicurus' theories of perception, see Jürss 45.

<sup>32</sup> *P.Herc.* 19/698 in Scott 1885 = Usener 1887.317-328 and Long-Sedley 1987.1.16C. See also the discussion of the papyrus by Sedley 1989.

<sup>33</sup> Cf. Alexander of Aphrodisias, *De sensu* 56.20 Wendland: if sight works through effluences, δι' ἀφῆς ἢ ἀντίληψις τῆ ὄψει ἔσται. For Alexander, this corroborates



Since all effluences exercise their effect as films by impinging upon or entering into the *sensorium*, touch is of the very essence of sensation. Lucretius, like Epicurus, wavers between the language of impact (*ictus*, *plaga*, *pellere*, etc.) and the language of penetration (*penetrare*, *insinuare*, etc.). Hence the analogy of the seal imprint, favored by Democritus, is regarded as imperfect. In the case of what I call intuition, the role of films in the prompting of dreams and thinking and the activation of the will<sup>34</sup> and locomotion (4.752-776 and 877-906), intrusion or penetration is the obvious mechanism. These films bypass the *sensoria* and enter directly through the body into the mind.<sup>35</sup> This is true of the select films upon which we base our experience of the gods;<sup>36</sup> it is true of the composite films, *συστάσεις*, *quae sponte sua gignuntur* (4.131), which give us the images of centaurs and hippogryphs and of persons no longer alive (4.728-748); it is true of films derived from an idea, a *πρόληψις*, rather than an immediate material entity (*simulacra meandi*, 4.881); and it is doubly true of sex where two bodies touch one another and erotic *simulacra* become responsible for the ejaculation of semen.<sup>37</sup> Touch works by films which touch: a regress not inquired into by Epicurus or Lucretius but inescapably demanded by their physics.

My contention, then, is that though Lucretius does not make explicit mention of *simulacra* in his discussion of taste, the whole burden of the paragraph, with its

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Aristotle's disapproval of the notion of ἀπόρροιαι: *De sensu* 3.440a15-20. Epicurus restores the credit of his atomist predecessors by resurrecting effluences and the significance of touch.

<sup>34</sup> This is in no way meant to gainsay the view of Sedley 1988.318 that volition, in turn, can act upon atomic matter. Cf. his footnote 46.

<sup>35</sup> Cf. Luschnat 1953.22 and 35, Kleve 1961.45, and Jürss 1991.63-4. Alternatively, intuitional films enter through the sense organs without stimulating the senses over which the organs preside. With Lemke 1973.18-19; 36 and others I am reluctant to accept the common view that *DRN* 4.745-751 establishes the doctrine that only one film is needed to activate intuition, especially the intuition of the gods. This calls for further discussion.

<sup>36</sup> Lucretius tells us that we cannot touch the gods, *DRN* 5.146-152. But if their effluences did not touch us, we would not know them. The distinction is clearly between manual touch, which is initiated by us, and the larger sense of touch, which is reciprocal. Physiologically speaking, the two are identical.

<sup>37</sup> Cf. the comments of Brown 1987.175 on *DRN* 4.1032 and his reference to Meleager, *AP* 12.125 and 127. Brown's translation of *simulacra* as "images" creates an impression that the films must be visual, originating from beauty. Cf. Brown 1987.72. It is true that Lucretius' lines also lean in this direction, but the poet, if asked, would surely agree that sex is also a matter of sound and odor and touch and intuition, the evocation of an idea of beauty. For the stimulation of sexual passion by *simulacra* see also *DRN* 4.1097-1104, where the language of effluences appears to be implanted into the description of the desperate behavior of the lovers: *penetrare* 1111, *liquescent* 1114, *erupit* 1115, *tabescunt* 1120. Also Philodemus *On death*, *P.Herc.* 1050, as discussed by Luschnat 1953.29-30: the effect of εἶδωλα on semen is illustrated by the experience of dying or diseased people suffering ejaculations.

talk of *corpora* and *semina* and their absorption into the passages of *sensoria* points toward the conception of effluences being released by the source-object of flavor and making their way into the pores of the tongue. It is notoriously difficult to determine when Lucretius, in using *semina* and *corpora*, or, for that matter, *primordia*, means “atoms” or “particles”, to use Bailey’s term, i.e., aggregates of atoms. As we have seen, effluences are variously called *simulacra* or *semina*, and in fact effluences are a species of particles. It is obvious that Lucretius, in talking about taste, was not himself interested in explicitly clarifying its operation as due to effluences. This would not be the only occasion on which Lucretius is slow to implement to the full the demands of his larger postulates. I appreciate the wisdom of the warning “that it is risky to credit or to charge an author with all the consequences which from a purely logical point of view seem to follow from his original assumptions”.<sup>38</sup> But in the terms he gives us, taste is almost necessarily accommodated by the general scheme. True, sight and hearing and smell work over distances, which makes the mission of films more plausible. But as we have said before, in the Epicurean cosmos a contact between material substances may be, or perhaps must be, a traffic over distance. *DNR* 4.222-223, on the salty flavor of the sea breeze, brings distance materially into the experience of taste.<sup>39</sup> Again, the object of sight is a complex structure, with color and shape furnishing only the basic conditions of apprehension — we see not color, but a colored object — whereas the prime object of taste is not the meat that is tasted but its flavor. But in that respect flavor is comparable to odor and sound, whose effluences in the first place manage to transmit the atomic structure, not of a rose or a bell, but only of themselves. Intuition and sight require σύνθεσις, the squaring of various *sensa* into one, to zero in on the complex structure identified; the other senses have no such need, though they may, in their own right, go the same route. In the last analysis, of course, all senses are capable of taking in what Aristotle calls ἴδια as well as κατὰ συμβεβηκός *sensa* (*De anima* 2.6.418a16-23).

Not only is it occasionally difficult to decide whether Lucretius is talking about atoms or about combinations of atoms. It is equally difficult, and ultimately perhaps unnecessary, to distinguish between effluences and the bodies from which they take their origin. On the face of it, the notion may appear implausible, in the light of the marked distinction Lucretius makes between effluences and bodies at *DRN* 4.31ff. and 54ff. (cf. Epicurus in *Herod.* 46-50, and fr. [24]45-48 Arr.<sup>2</sup>). I would want to argue that in Lucretius this distinction is a temporary move, fuelled by resort to analogy, for the sake of clarifying the behavior of effluences in isolation. What seems to me attractive about the assumption of an underlying identity of effluences and source-object is that it has the effect of voiding the controversy alluded to by Sextus Empiricus (*Adv.*

<sup>38</sup> Merlan 1960.56.

<sup>39</sup> We may compare Aristotle, *De sensu* 4.442a31ff., as paraphrased by Ross 1973.25: “It is not the particle impinging upon the tongue that causes the taste, but the qualitative modification of the liquid medium which is identified as the flavour. If we lived amidst this vehicle, surrounded by it as we are by air, then it would act as a medium exactly as the air does in colour and sound ...”.

*math.* 8.63-66), between those who aver that sensation has the films as its objects, and others who respond that what is sensed is the source-object itself.<sup>40</sup> *Simulacra*, we hear on several occasions, consist of constant streams of films extending continuously between source and destination and maintaining a lasting cohesion, *συμπάθεια*, both among themselves and with the source.<sup>41</sup> To be sure, the stream of films often becomes rearranged before it reaches the *sensorium*, or even after its entry.<sup>42</sup> The rounded tower (4.353-363) and the broken oar (4.438-442) are notorious examples. But this does not seem to affect Lucretius' belief that sensation, i.e. the sensation of the source-object, is veridical, and that such deformations are, as it were, environmental hazards remedied by perceptive recuperation, hazards to be distinguished from the errors introduced by *κενά δόξα*.<sup>43</sup>

The environmental hazards should be especially great in the case of the most distant source-objects, i.e., the divinities. Philodemus, who of course has his own agenda, has a phrase about how the films (or traces of films) of the gods in their journey to us get conflated with the films (or traces of films) of the heavenly bodies and of deified humans.<sup>44</sup> It is a wonder that true *φαντασία* of the

<sup>40</sup> Furley 1993.91 note 37 lists some of the scholars who support the former theory. His own position, that what is sensed is the source-object, is shared by Asmis 1984.130, Sedley 1989.126, and Jürss 1991.68. — Sextus is quite mistaken when in another context, *Adv. Math.* 7.293-300, he puts into play the proposition that our senses apprehend only properties of the source-objects. Elsewhere, 8.65, he complains that Epicurus fails to tell us how we can distinguish *φαντασία* that derive from *εἶδωλα* from those that come from the *στερέμνια* themselves, as if both were discrete possibilities.

<sup>41</sup> See Epicurus, *Herod.* 48.8-11 (reading *τίνα* with Usener and Bailey), 50.1-4, and 52.7-53.1 (reading *ἀπ'* *ἐκείνου* with Zf). Cf. also the fragments printed as [24]45 and 47 Arrighetti 1973. For the significance of the prepositions *πρός* and *ἀπό* in this context, see Lee 1978.54 note 8. For a different view of *συμπάθεια* see Jürss 1991.67 note 150. For the semantic range of *συμπάθεια* see Long-Sedley 1987.1.90. Cf. also Aristotle's definition of the oneness of a substance in terms of *συνέχεια*, *Met.* 2.4.1016b9.

<sup>42</sup> See *Herod.* 48.5-6: *εἰ καὶ ἐνίοτε συγχεομένη ὑπάρχει*.

<sup>43</sup> Lucretius' *diffusa solute*, *DRN* 4.55, and *scinduntur per iter flexum*, *DRN* 4.93, said of effluences that come from deep within the source-object, is language that puts them on a par with the effluences of sound and, far from signifying distortion, is compatible with *συμπάθεια*. Cf. *διασπείρεται*, *Herod.* 52.7. How the "environment", i.e. the potential blockage of air or water between the distant source-object and the sense organ, or the interference of other effluences, can be made to square with the continuousness and the extraordinary speed of the stream of effluences is an Epicurean conundrum, as is the role of air as a propellant of films. Cf. Bailey 1947.1212.

<sup>44</sup> Philodemus *De dis* III 8.36-9.14 Diels. Then again, at 9.20, Philodemus, attempting to solve Epicurean *ἀπορία*, appears to bring in *ὑπέρβασις*, the notion that the divine effluences by-pass the disturbing effects of our cosmos as they reach our minds. But contrast the interpretation of Woodward 1989.34-42, and appendix: it is

gods can come about at all. But it is accepted that they do, especially in the minds of the wise,<sup>45</sup> which speaks for the (defensive) power of the divine films, but equally for the power of all films, whose veridical force is the foundation of knowledge. Given the atomic composition of source-objects, it is only to be expected that they are endowed with a potential plasticity made manifest under certain conditions of transmittal. The behavior of the iron ring, following in the path of its effluences, and the difficulty of distinguishing between air and its effluences, reinforce the proposition. That the effluences may originate from the surface or the interior of the source, where *πάλσις* rules, further supports the notion of a plasticity conditional on the interaction between atoms and the void. True, the virtual identity of source-object and its effluences is more easily accepted in the case of taste than in the case of the senses saddled with the embarrassment of distance. But the idea of the effluences from the gods, having travelled the vast distance between the *intermundia* and our *mens*, being extensions of the divine presence is one recognized in religious experience,<sup>46</sup> such as the epiphanies instanced by Balbus in *De nat. deor.* 2.6. Perhaps it would be wiser to say that Epicurus and Lucretius fail to supply us with the evidence to come down firmly on one side or the other, between the view that effluences partake of the substance of the source-object, and the view that they are separated from it, ἕτερον τοιοῦτον, as Plato's Theaetetus defines εἶδωλον (*Soph.* 240A8). When Philodemus says, or may have said (the papyrus is lacunose), that sometimes Epicurus ascribed to the divine effluences an identical nature, and at

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the φαντασίαι, not the films, that experience ὑπέρβασις. — I am unable to accept the interesting and brilliantly argued notion of Long-Sedley 1987.1.144-149, labelled 'controversial' by themselves, that the gods are primarily thought-constructs. Cf. also A. Laks in *Gnomon* 49 (1977) 123-127. This seems to me to give undue weight to Sextus' μετάβασις (and Cicero's *transitio*), and to neglect the implications of Sextus' argument against circularity. For a critique of the Long-Sedley interpretation, cf. G.B. Kerferd in *Classical Review* 39 (1989) 50, and Mansfeld 1993.190-201. In any case, Long-Sedley 2.146 note recognize that, whatever Epicurus' theory, Lucretius assumes that "divine *simulacra* come to us from the bodies of the gods".

<sup>45</sup> Cf. Schmid 1951, esp. 130-131. Do they speak to them in Greek, as Philodemus averred, *De dis* III col.14 Diels? Cf. the scoffing attack by Sextus Empiricus *Adv. Math.* 9.178.

<sup>46</sup> Cf. Scott 1883.228: "The gods and the images *are* in one sense identical". Scott's statement goes along with the very different notion, picked up by Bailey 1928.454-459, that the gods are eternal in that they undergo a perpetual death and a perpetual birth, a constant loss of their atoms to form effluences and a constant resupply from the *intermundia*. Cicero and schol. KΔ 1 suggest that the gods are not bodies in the usual sense, though I hasten to add that, as Cotta saw, *στερέμνια* also suffer depletion and resupply. The εἶδωλα of the gods, Bailey holds, are not the outer atomic skins but the very constituents, made up of transient atoms, of the forms of the gods. See now also Woodward 1989.40-41. In any case, as far as sensation and perception are concerned it remains the case that gods and *στερέμνια* affect the mind in the same manner.

other times a like nature, the report may signal precisely this ambivalence, though I would not want to press the point.<sup>47</sup> It looks as if a στερέμνιον needs to have its limits defined in terms of a balance between output and input.<sup>48</sup> Obviously, all this will need further discussion. But if effluences are the source-object in a particular phase of its operative existence, the analogy with photographic images or digital impulses which is found in some modern accounts must be abandoned. Further, if source-object and effluences are merely two different ways of talking about the same entity, the problem how a film could be emitted from a three-dimensional body becomes less worrisome.

At any rate, the very first arrival of a chain of effluences brings the receptor into contact with the source-object through the succession of films that forms a natural extension of it. To distinguish between an indirect contact and a direct contact becomes, under these circumstances, a moot issue.<sup>49</sup> Effluences are neither merely the causes nor merely the means of sensing the source-objects,<sup>50</sup> though it would be fair to say that they are what furnishes manifestness, ἐνάργεια. For Epicurus to regard the source-objects and their effluences as virtually identical would be reminiscent of Aristotle who, in Ross' words, said of sense perception that "what gets inside the organ must be the εἶδος of the external object".<sup>51</sup> The virtual identity of source-object and films is guaranteed by the constant resupply of the atoms released, a truth affirmed by Epicurus and Lucretius in the face of earlier doubts.<sup>52</sup> The atomic oscillation, πάλσις, which

<sup>47</sup> Philod. *De piet.* 118.4 = [192] Arrighetti 1973. Cf. also the scholiast of *KΔ* 1, and the discussion by Arrighetti 1973.545-54. Generally interpretations connect the contrast between τὰ ὅμοια and τὰ αὐτά with the issues discussed below, in note 55; see especially Merlan 1960, ch. 2, and Woodward 1989.40-41, who argues that Epicurean gods consist of nothing but streams of effluences (cf. also Cotta in *De nat. deor.* 1.37.105), a position that comes close to my notion of plasticity. (See also fr. [34]11 Arr.<sup>2</sup> for the equivalence, in discourse, of compound body and atoms in motion.) But then it becomes difficult to distinguish the substance of divine entities from those of ordinary στερέμνια, as Woodward does.

<sup>48</sup> In the case of the formations which Epicurus, *Herod.* 48.6-7 calls συστάσεις, and which are discussed at *DNR* 4.129-142, source-objects and effluences are identical *a fortiori*. One issue that awaits discussion is how a σύστασις, a casual or freefloating film, characterized by its lack of depth and supposedly non-substantial in the sense that it lacks reference to an existent entity, can also transform itself into the chain of films needed to effect a φαντασία of some duration.

<sup>49</sup> Giussani 1921.178 comes close to this conclusion: "... il contatto indiretto ... e un vero sostituto del contatto diretto ...". Epicurus, *Herod.* 53.2-8 emphasizes the directness, εὐθύς, of the impact of sound only in order to rebut Democritus' view that air is the medium of transmission.

<sup>50</sup> Causes: Diog. Oenoand. 9 II 14 in Smith 1993; means: Lee 1978.43-44.

<sup>51</sup> Ross 1973.7. Of course Aristotle is concerned more with proper objects than with common or with accidental objects; cf. Modrak 1987.79.

<sup>52</sup> *Herod.* 48.4; *DRN* 4.776; *contra*: Alexander of Aphrodisias *De sensu* 57.1-2 Wendland. Cf. also Plutarch, *Adv. Col.* 16.1116C, where the close relation between the flux of εἶδωλα, πάλσις, ἀνταναπλήρωσις, and the cohesion of the source-

is ultimately responsible for the emission of films, translates itself and the object which it defines into the *sensoria*, which are themselves, of course, endowed with their own oscillation and send out their own effluences. Lucretius shies away from adverting to this complicating reciprocity, which earlier theories of perception, those of Empedocles and Plato and others, had taken in their stride. Aristotle's analysis of some of the senses, including odor and flavor, might have encouraged the maintenance of the notion of reciprocity.<sup>53</sup> Epicurus at one point protests against it,<sup>54</sup> though his own presuppositions should have forced him into sympathizing with it. The paragraph on magnetism is the closest Lucretius comes to hinting at the power of effluences meshing with effluences. We may also compare what he says, 4.304-311, about sight: the fiery *semina* emitted by a glare of light settle in the eyes; on the other hand, *semina* of yellow given off by the eyes themselves flow toward the *simulacra* of the objects of sight.<sup>55</sup>

This topic we have to pass up. What matters is that we can accept both the notion of contact and the doctrine of effluences for a satisfactory explanation of how flavor is apprehended. The object works *through*, in the literal spatial sense, its virtual extension (or the virtual reality of its extension), and thus without an instrumental agent, to affect the *sensorium*. Because there is no essential difference between saying that in sensation and perception we apprehend an object, and saying that we apprehend effluences, the anatomy of taste follows roughly the same rules as the analysis of the other senses. There is an apparent difference: in the cases of sight and hearing and smell the greater distance and the interposition of refracting media like air and water create apparent distortions of the films. And how the visual films of large source-objects accommodate their size to the passages of the eyes is still a much disputed topic. In the case of taste, the attenuated distance is likely to permit only minimal distortion. But even here

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object is splendidly brought to life. In this respect effluences are entirely different from the processes of metabolism, such as breathing out and sweating, where the replenishment, in the form of food, has to be supplied artificially: *DRN* 4.858-869. That the two processes might perhaps be confused emerges from the refutative contrast drawn between the intake of food and drink and the intrusion of the *simulacra* of love: *DRN* 4.1091-1096.

<sup>53</sup> *De sensu* 2.438b24-25 and 4.441b19-21. Plato's fire shot from the eyes (*Tim.* 45B-D) continues to attract Macrobius in his criticism of Epicurus, *Sat.* 7.14.4-7.

<sup>54</sup> *Herod.* 49.4-6.

<sup>55</sup> For the language of reciprocity, see Plutarch, *Adv. Col.* 16.1116C. Reciprocity appears to be involved also in the ἀνταναπλήρωσις of the atomic material of the gods as reported, in a notoriously mystifying passage, by Velleius in Cicero, *De nat. deor.* 1.49: *cum infinita simillarum imaginum species ex innumerabilibus individuis existat et ad deos (ms: eos) affluat*. If the text is sound, and any meaning can be gotten out of it, which Moreschini 1961 doubts, the meaning appears to be that as the gods send out their effluences, equivalent effluences reach them, perhaps, among countless others, from the wise whom the gods "accept": Epicurus, *Men.* 124. Cf. Scott 1883.214 and Kleve 1963.38-39 and 83-85. Of interpretations and emendations of this passage there is no dearth.

the interposition of air and water cannot be ruled out, especially in the case of the sea breeze.

Still, to return to our principal question: since Lucretius openly recognizes the importance of effluences in the matter of sight, smell, and hearing, why does he modify his language in talking about taste? It is not enough merely to suggest that he continues to be bound by the distinction Aristotle makes initially between sight, hearing, and smell, on the one hand, and taste (and touch) on the other (*De anima* 2.10.422a8-10). Lines 4.615-616, cited above in note 19, may provide a clue.

*Hoc, qui sentimus sucum, lingua atque palatum  
plusculum habent in se rationis, plus operai.*

Lucretius acknowledges that the tongue and the palate do more work and exercise a greater degree of authority, and produce a greater variety of responses, than do the eye or the nose or the ear. The diminutive *plusculum* must be an ironic stand-in for “a great deal more”. Hence Lucretius’ attention is sidetracked from the sources of the flavors to their difficult-to-pin-down manifestations as the *sensoria* ply their authoritative but laborious trade.<sup>56</sup> The portrayal of what tongue and palate do with what is offered to them is advanced in loving detail, an avowal of the pleasure gained from taste; Epicurus’ notorious abstemiousness is put out of mind. But both the context, and the language of arrival and penetration, leave little doubt that taste is subject to the same conditions and rules that control the other senses. Artistic *variatio* combines with a new focus prompted by the connoisseurship of taste to screen out the language of effluence, and to spotlight the texture of the food. But we are to remember that all sensation is rooted in touch, and in the atomic universe of Epicurus and Lucretius touch itself evokes the notion of effluences, and, more profoundly if tacitly, of the meshing of effluences.<sup>57</sup>

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<sup>56</sup> Plutarch, *Adv. Col.* 25 p.1121b2-3, cited by Bailey 1947.1254 note 1, calls flavor a *πάθος δέ τι καὶ κίνημα περὶ αὐτὴν* <sc. γεῦσιν>. This is part of his argument against the Epicurean doctrine of effluences. One must assume that Plutarch included taste among the senses covered by the doctrine.

<sup>57</sup> I am extremely grateful to Diskin Clay and Jim Porter and to two anonymous readers for suggestions that have improved the paper.

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