

LUCRETIUS
DE RERUM NATURA

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T. LUCRETI CARI
DE RERUM NATURA

LIBER PRIMUS

AENEADUM genetrix, hominum divomque voluptas,
alma Venus, caeli subter labentia signa
quae mare navigerum, quae terras frugiferentis
concelebras, per te quoniam genus omne animantum
concipitur visitque exortum lumina solis : 5
te, dea, te fugiunt venti, te nubila caeli
adventumque tuum, tibi suavis daedala tellus
summittit flores, tibi rident aequora ponti
placatumque nitet diffuso lumine caelum.
nam simul ac species patefactast verna diei 10
et reserata viget genitabilis aura favoni,
aeriae primum volucres te, diva, tuumque
significanc initum percussae corda tua vi.
15 inde ferae, pecudes persultant pabula laeta
14 et rapidos tranant amnis : ita capta lepore 15

^a Venus in this invocation is a figure of extraordinary complexity : as well as being the goddess of traditional religion and mythology who was mother of Aeneas and the Roman people, who was loved by Mars, and who appears on the coins of the *gens Memmia*, she is the Empedoclean principle of Love (as opposed to Mars = Strife), representing

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LUCRETIUS
BOOK I

MOTHER of Aeneas and his race, darling of men and gods, nurturing Venus,^a who beneath the smooth-moving heavenly signs fill with yourself the sea full-laden with ships, the earth that bears the crops, since through you every kind of living thing is conceived and rising up looks on the light of the sun : from you, O goddess, from you the winds flee away, the clouds of heaven from you and your coming ; for you the wonder-working earth puts forth sweet flowers, for you the wide stretches of ocean laugh, and heaven grown peaceful glows with outpoured light. For as soon as the vernal face of day is made manifest, and the breeze of the teeming west wind blows fresh and free, first the fowls of the air proclaim you, divine one, and your advent, pierced to the heart by your might. Next wild creatures and farm animals dance over the rich pastures and swim across rapid rivers : so greedily does each one follow you, held captive by your charm,

the creative forces in the world, and she is the personification of the Epicurean *summum bonum*, pleasure (*voluptas*). Lucr. addresses her not only as the power of physical creation, but also as the giver of charm to his poetry (21-28). Spenser imitates 1-25 in *The Faerie Queene* 4.10.44-47.

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LUCRETIIUS

DE RERUM NATURA, 1. 16-41

te sequitur cupide quo quamque inducere pergis.
denique, per maria ac montis fluviosque rapacis
frondiferasque domos avium camposque virentis,
omnibus incutiens blandum per pectora amorem,
efficis ut cupide generatim saecla propagent. 20

Quae quoniam rerum naturam sola gubernas,
nec sine te quicquam dias in luminis oras
exoritur neque fit laetum neque amabile quicquam,
te sociam studeo scribendis versibus esse
quos ego de rerum natura pangere conor 25
Memniadae nostro, quem tu, dea, tempore in omni
omnibus ornatum voluisti excellere rebus.
quo magis aeternum da dictis, diva, leporem.

Effice ut interea fera moenera militaria
per maria ac terras omnis sopita quiescant ; 30
nam tu sola potes tranquilla pace invare
mortalis, quoniam belli fera moenera Mavors
armipotens regit, in gremium qui saepe tuum se
reicit aeterno devictus vulnere amoris,
atque ita suspiciens tereti cervice reposta 35
pascit amore avidos inhians in te, dea, visus,
eque tuo pendet resupini spiritus ore.
hunc tu, diva, tuo recubantem corpore sancto
circumfusa super, suavis ex ore loquellas
funde petens placidam Romanis, incluta, pacem ; 40
nam neque nos agere hoc patriae tempore iniquo

34 reicit *Lactantius Placidius on Statius, Theb. 3.296*
(*manuscripts LP*): reicit *QG, Laet. Plac., loc. cit. (MPe)*;
reficit *O*

^a The title of the poem—a translation of *Περὶ Φύσεως*, the
title both of Epicurus' chief work and of one of the poems of
Empedocles, whom Lucretius deeply admired (716-738).

^b It has been suggested (D. E. W. Wormell in *G and R*

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whither you go on to lead them. Then throughout
seas and mountains and sweeping torrents and the
leafy dwellings of birds and verdant plains, striking
alluring love into the breasts of all creatures, you
cause them greedily to beget their generations after
their kind.

²¹ Since therefore you alone govern the nature of
things, since without you nothing comes forth into
the shining borders of light, nothing joyous and
lovely is made, you I crave as partner in writing the
verses, which I essay to fashion on the Nature of
Things,^a for my friend Memmius, whom you, goddess,
have willed at all times to excel, endowed with all
gifts. Therefore all the more grant to my speech,
goddess, an ever-living charm.

²⁹ Cause meanwhile the savage works of war to
sleep and be still over every sea and land. For you
alone can delight mortals with quiet peace, since
Mars^b mighty in battle rules the savage works of
war, who often casts himself upon your lap wholly
vanquished by the ever-living wound of love, and
thus looking upward, with shapely neck thrown back,
feeds his eager eyes with love, gaping upon you,
goddess, and, as he lies back, his breath hangs upon
your lips.^c There as he reclines, goddess, upon your
sacred body, do you, bending around him from
above, pour from your lips sweet coaxings, and for
your Romans, illustrious one, crave quiet peace. For
in this time of our country's troubles neither can I do

ser. 2, 7 [1960] 61) that Lucretius uses the archaic form *Mavors*
to emphasize the connexion between Mars and *mors*.
^e Lucretius' description, which may owe something to a
painting or sculpture, probably had some influence, through
Politian, on Botticelli's *Marte e Venere* (cf. note on 5.740).
Certainly Byron had it in mind in *Childe Harold* 4.51.

^a Persuade
Mars your
lover to give
us peace.

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LUCRETIVS

possumus aequo animo nec Memmi clara propago
 talibus in rebus communi desse saluti.
 omnis enim per se divom natura necessest
 immortali aevo summa cum pace fruatur 45
 senota ab nostris rebus seiunctaque longe ;
 nam privata dolore omni, privata periclis,
 ipsa suis pollens opibus, nil indiga nostri,
 nec bene promeritis capitur neque tangitur ira.

Quod superest, vacuas auris animumque sagacem
 semotum a curis adhibe veram ad rationem, 51
 ne mea dona tibi studio disposta fidei,
 intellecta prius quam sint, contempta relinquant.
 nam tibi de summa caeli ratione deumque
 disserere incipiam, et rerum primordia pandam, 55
 unde omnis natura creet res auctet alatque
 quove eadem rursum natura perempta resolvat,
 quae nos materiem et genitalia corpora rebus
 reddunda in ratione vocare et semina rerum
 appellare suemus et haec eadem usurpare 60
 corpora prima, quod ex illis sunt omnia primis.

Humana ante oculos foede cum vita iaceret
 in terris oppressa gravi sub religione,

44-49, which recur in 2.646-651, are excluded or bracketed by most editors. However, strong arguments for the retention of the lines are summarized by Bailey 601-602, 1750. It is true that the passage comes in abruptly, and it may be assumed that Lucr. first wrote it in Book 2, and later inserted it here without adjusting it properly to its new context. In view of this manifest lack of revision, it seems unnecessary and unwise to assume a lacuna either before or after the lines 50 *vacuas auris animumque sagacem scholia Veronensia on Virgil, G. 3.3: ut (deleted by O corr.) vacuas auris OQG*

DE RERUM NATURA, 1. 42-63

my part with untroubled mind, nor can the noble
 scion of the Memmi at such a season be wanting to
 the common weal.^a [I pray to you for peace,] for
 the very nature of divinity must necessarily enjoy
 immortal life in the deepest peace, far removed and
 separated from our affairs ; for without any pain,
 without danger, itself mighty by its own resources,
 needing us not at all, it is neither propitiated with
 services nor touched by wrath.^b

⁵⁰ For the rest, ^c ears unpreoccupied and keen in-
 telligence detached from cares you should apply to
 true philosophy, that my gifts, set forth for you with
 faithful solicitude, may not by you be contemptu-
 ously discarded before they have been apprehended.
 For I shall begin to discourse to you upon the most
 high system of heaven and of the gods, and I shall
 disclose the first-beginnings of things,^d from which
 nature makes all things and increases and nourishes
 them, and into which the same nature again reduces
 them when dissolved—which, in discussing philo-
 sophy, we are accustomed to call matter, and bodies
 that generate things, and seeds of things, and to
 entitle the same first bodies, because from them as
 first elements all things are.

⁶² When man's life lay for all to see foully grovelling
 upon the ground, crushed beneath the weight of

^a Probably an allusion to Memmius' praetorship of 58 B.C.

^b Cf. Epicurus, *Sent.* 1.

^c The absence of the expected address to Memmius by name is probably due to lack of revision rather than to a textual loss (cf. critical note on 44-49), unless—and this is improbable—the name has dropped out of 50, a defective line in the manuscripts (see critical note).

^d The atoms.

LIBER SECUNDUS

SUAVE, mari magno turbantibus aequora ventis,
 e terra magnum alterius spectare laborem ;
 non quia vexari quemquamst iucunda voluptas,
 sed quibus ipse malis careas quia cernere suave est.
 6 suave etiam belli certamina magna tueri 5
 5 per campos instructa tua sine parte pericli.
 sed nil dulcius est bene quam munita tenere
 edita doctrina sapientum templa serena,
 despiciere unde queas alios passimque videre
 errare atque viam palantis quaerere vitae, 10
 certare ingenio, contendere nobilitate,
 noctes atque dies niti praestante labore
 ad summas emergere opes rerumque potiri.
 o miseras hominum mentes, o pectora caeca !
 qualibus in tenebris vitae quantisque periclis 15
 degitur hoc aevi quodcumquest ! nonne videre
 nil aliud sibi naturam latrare, nisi utqui
 corpore seiunctus dolor absit, mensque fruatur
 iucundo sensu cura semota metuque ?

5-6 transposed by *Avancius* and all recent editors except *Büchner*, who, like *Merrill* and *Bailey*, overlooks the fact that the transposition was rejected by ed. *Juntina*, *Naugerius*, and *Wakefield* 18 mensque *Marullus* : mente OQG

BOOK 2

PLEASANT it is, when on the great sea the winds trouble the waters, to gaze from shore upon another's great tribulation : not because any man's troubles are a delectable joy, but because to perceive what ills you are free from yourself is pleasant. Pleasant is it also to behold great encounters of warfare arrayed over the plains, with no part of yours in the peril. But nothing is more delightful than to possess lofty sanctuaries serene, well fortified by the teachings of the wise, whence you may look down upon others and behold them all astray,^a wandering abroad and seeking the path of life :—the strife of wits, the fight for precedence, all labouring night and day with surpassing toil to mount upon the pinnacle of riches^b and to lay hold on power. O pitiable minds of men, O blind intelligences ! In what gloom of life,^c in how great perils is passed all your poor span of time ! not to see that all nature barks for is this, that pain be removed away out of the body, and that the mind, kept away from care and fear, enjoy a feeling of delight !

^a Cf. Cicero, *Fin.* 1.19.62 (of the wise man as represented by Epicurus) : *cum stultorum vitam cum sua comparat, magna afficitur voluptate.*

^b 12-13 (*noctes . . . opes*) = 3.62-63.

^c For the darkness of ignorance from which Epicurus rescued mankind, cf. e.g. 3.1-2, 5.11-12.

Ergo corpoream ad naturam pauca videmus 20
 esse opus omnino, quae demant cumque dolorem,
 delicias quoque uti multas substernere possint ;
 gratius interdum neque natura ipsa requirit,
 si non aurea sunt iuvenum simulacra per aedes
 lampadas igniferas manibus retinentia dextris, 25
 lumina nocturnis epulis ut suppeditentur,
 nec domus argento fulget auroque renidet
 nec citharae reboant laqueata aurataque templa,
 cum tamen inter se prostrati in gramine molli
 propter aquae rivum sub ramis arboris altae 30
 non magnis opibus iucunde corpora curant,
 praesertim cum tempestas adridet et anni
 tempora conspergunt viridantis floribus herbas.
 nec calidae citius decedunt corpore febres,
 textilibus si in picturis ostroque rubenti 35
 iacteris, quam si in plebeia veste cubandum est.

Quapropter quoniam nil nostro in corpore gazae
 proficiunt neque nobilitas nec gloria regni,
 quod superest, animo quoque nil prodesse putandum ;
 si non forte, tuas legiones per loca campi 40
 fervere cum videas belli simulacra cientis,

41 *Nonius, p. 808 Lindsay, quotes from Lucr. 2 fervere cum videas classem lateque vagari. Some editors insert this line after 43; Munro, following A. G. Roos, places it after 46; others, probably rightly, regard it as a misquotation of 41*

^a According to Epicurus, pleasure is limited, and the limit of pleasure for the body is reached when the natural and necessary desires are satisfied and the pain caused by want is removed. Cf. e.g. Epicurus, *Ep. ad Men.* 130-131, *Sent.* 3, 18, Cicero, *Fin.* 1.11.38.

²⁰ Therefore we see that few things altogether Luxury is of no use for body are necessary for the bodily nature, only such in each case as take pain away,^a and can also spread for our use many delights ; nor does nature herself ever crave anything more pleasurable, if there be no golden images of youths about the house, upholding fiery torches in their right hands that light may be provided for nightly revellings,^b if the hall does not shine with silver and glitter with gold, if no cross-beams panelled and gilded echo the lyre, when all the same ^c stretched forth in groups upon the soft grass beside a rill of water under the branches of a tall tree men merrily refresh themselves at no great cost, especially when the weather smiles, and the season of the year besprinkles the green herbage with flowers.^d And no quicker do hot fevers fly away from your body, if you have pictured tapestry and blushing purple to toss upon, than if you must lie sick under the poor man's blanket.

³⁷ Therefore, since treasures profit nothing for our body, nor noble birth nor the glory of royalty, we must further think that for the mind also they are or mind ; unprofitable ; unless by any chance, when you behold your legions seething over the spacious Plain ^e as they evoke war in mimicry, established firm with

^b 24-26 are in imitation of Homer, *Od.* 7.100-102.

^c That is, despite the lack of the luxuries listed in 24-28. The desire for such luxuries is neither natural nor necessary, and therefore must be banished. For Epicurus' classification of desires, see *Ep. ad Men.* 127, *Sent.* 29, Cicero, *Fin.* 1.13.45.

^d 29-33 are repeated, with minor alterations, in 5.1392-1396. For the significance of the repetition, see B. Farrington in *Hermathena* 81 (1953) 59-62.

^e *campi* (40) probably refers to the Campus Martius at Rome. Cf. 323-332.

subsidiis magnis et equum vi constabilitas,
 ornatas armis pariter pariterque animatas,
 his tibi tum rebus timefactae religiones
 effugiunt animo pavidae, mortisque timores 45
 tum vacuum pectus linquunt curaque solutum.
 quod si ridicula haec ludibriaque esse videmus,
 re veraque metus hominum curaque sequaces
 nec metuunt sonitus armorum nec fera tela
 audacterque inter reges rerumque potentis 50
 versantur neque fulgorem reverentur ab auro
 nec clarum vestis splendorem purpureai,
 quid dubitas quin omni' sit haec rationi' potestas,
 omnis cum in tenebris praesertim vita laboret ?
 nam veluti pueri trepidant atque omnia caecis 55
 in tenebris metuunt, sic nos in luce timemus
 interdum nilo quae sunt metuenda magis quam
 quae pueri in tenebris pavitant finguntque futura.
 hunc igitur terrorem animi tenebrasque necessest
 non radii solis neque lucida tela diei 60
 discutiant, sed naturae species ratioque.

Nunc age, quo motu genitalia materiai
 corpora res varias gignant genitasque resolvant,
 et qua vi facere id cogantur, quaeque sit ollis

*42-43 omitted by Q which indicates a lacuna of three lines :
 written in uncials by OG : transposed by Bailey 42
 et ecum (=equum) vi Munro (the form ecus has manu-
 script authority in 4.420) : epicuri OGABF : et opum vi
 Büchner, comparing Ennius, Ann. 161, 412 43 pariter
 (after armis) Bernays (pariter pariterque occurs 3.457, and
 here the first pariter may have been omitted by haplography
 (cf. 4.653), or there may have been a blot in the middle of 43
 and 42) : itastatuas O, with dots under at, to indicate that
 the letters should be omitted : itasiuas (itastuas, according to*

mighty supports and a mass of cavalry, marshalled
 all in arms cap-à-pie and all full of one spirit, then
 these things scare your superstitious fears and drive
 them in panic flight from your mind, and death's
 terrors then leave your heart unpossessed and free
 from care. But if we see these things to be ridiculous
 and a mere mockery, if in truth men's fears and
 haunting cares fear neither the clang of arms nor
 wild weapons, if they boldly mingle with kings and
 sovereigns of the world, if they respect not the sheen
 of gold nor the glowing light of crimson raiment, why
 doubt you that this power wholly belongs to reason, only philo-
 sophy can help us.
 especially since life is one long struggle in the dark ?
 For just as children tremble and fear all things in
 blind darkness, so we in the light fear, at times, things
 that are no more to be feared than what children
 shiver at in the dark and imagine to be at hand.^a
 This terror of the mind, therefore, and this gloom
 must be dispelled, not by the sun's rays nor the bright
 shafts of day, but by the aspect and law of nature.^b

⁶² Listen now, and I will set forth by what motion I. Atomic
 motion (62-332).
 Atoms are
 in constant
 motion,
 the generative bodies of matter beget the various
 things and dissolve them once begotten, and by what
 force they are compelled to do it, and what swiftness

^a Cf. the opening words of Francis Bacon's essay *Of
 Death* : " Men fear death as children fear to go into the
 dark ; and as that natural fear in children is increased with
 tales, so is the other."

^b 55-61 = 3.87-93, 6.35-41. 59-61 = 1.146-148.

some recent editors) G : statuas Itali (according to recent
 editors, but ita statuas is the reading of the ed. Veronensis and
 ed. Veneta) 46 pectus Lambinus : tempus OQGP, Wake-
 field (comparing Terence, Haut. 90)

reddita mobilitas magnum per inane meandi, 65
expediam ; tu te dictis praebere memento.

Nam certe non inter se stipata cohaeret
materies, quoniam minui rem quamque videmus
et quasi longinquo fluere omnia cernimus aevo
ex oculisque vetustatem subducere nostris, 70
cum tamen incolumis videatur summa manere
propterea quia, quae decedunt corpora cuique,
unde abeunt minuunt, quo venere augmine donant,
illa senescere, at haec contra florescere cogunt,
nec remorantur ibi. sic rerum summa novatur 75
semper, et inter se mortales mutua vivunt :
augescunt aliae gentes, aliae minuuntur,
inque brevi spatio mutantur saecula animantum
et quasi cursores vitae lampada tradunt.

Si cessare putas rerum primordia posse 80
cessandoque novos rerum progignere motus,
avius a vera longe ratione vagaris.
nam quoniam per inane vagantur, cuncta necessest
aut gravitate sua ferri primordia rerum
aut ictu forte alterius. nam cum cita saepe 85
obvia confluxere, fit ut diversa repente
dissiliant ; neque enim mirum, durissima quae sint
ponderibus solidis neque quicquam a tergo ibus obstet.

85 quom (=cum *Lachmann*) cita *Wakefield* (in his notes,
but not in his text) : cita *OQGAB* 86 confluxere *F*
(*Lambinus*, to whom some modern editors attribute the reading,
found it "in quibusdam libris manuscriptis" and did not
print it in his text, though he thought it a "scriptura proba-
bilis" : confluxere *OQG* : confluxere *BL* 88 tergo ibus
Isaac Voss : tergibus *OQGP*, *Diels*, *Martin*, *Büchner*

^a The metaphor is from the Athenian lampadedromy
(relay torch-race), as in Plato, *Leg.* 776 B (quoted by *Lam-
binus*) : γεννώντας τε καὶ ἐκτρέφοντας παῖδας, καθάπερ λαμπάδα

has been given them to travel through the great
void ; do you remember to give heed to my words.

⁶⁷ For certainly matter is not one packed and
coherent mass, since we see each thing decreasing,
and we perceive all things as it were ebbing through
length of time, and age withdrawing them from our
eyes ; although nevertheless the sum is seen to re-
main unimpaired for this reason, that whenever
bodies pass away from a thing, they diminish that
from which they pass and increase that to which they
have come, they compel the first to fade and the
second on the contrary to bloom, yet do not linger
there. Thus the sum of things is ever being re-
newed, and mortal creatures live dependent one upon
another. Some species increase, others diminish, and
in a short space the generations of living creatures
are changed and, like runners, pass on the torch of
life.^a

⁸⁰ If you think the first-beginnings of things can
stand still, and by standing still can beget new
motions amongst things, you are astray and wander
far from true reasoning.^b For since the first-begin-
nings of things wander through the void, they must
all be carried on either by their own weight or by a
chance blow from another atom. For when in quick
motion they have often met and collided, it follows
that they leap apart suddenly in different directions ;
and no wonder, since they are perfectly hard in their
solid weight and nothing obstructs them from behind.

τὸν βίον παραδίδοντας ἄλλοις ἐξ ἄλλων = "begetting and rearing
children, and so handing on life, like a torch, to successive
generations." Pius compares Varro, *Rust.* 3.16.9, Persius
6.61.

^b Epicurus deals briefly with atomic motion in *Ep. ad Hdt.*
43-44, 61-62.

increasing
this, dimin-
ishing that,
while the
sum
remains
unchanged.

Some move
free
through the
void ;

et quo iactari magis omnia materiai
 corpora pervideas, reminiscere totius imum 90
 nil esse in summa, neque habere ubi corpora prima
 consistant, quoniam spatium sine fine modoquest,
 inmensumque patere in cunctas undique partis
 pluribus ostendi et certa ratione probatumst.
 quod quoniam constat, nimirum nulla quies est 95
 reddita corporibus primis per inane profundum,
 sed magis adsiduo varioque exercita motu
 partim intervallis magnis confulta resultant,
 pars etiam brevibus spatiis vexantur ab ictu.
 et quaecumque magis condense conciliatu 100
 exiguis intervallis convecta resultant,
 indupedita suis perplexis ipsa figuris,
 haec validas saxi radices et fera ferri
 corpora constituunt et cetera de genere horum.
 cetera, quae porro magnum per inane vagantur, 105
 paucula dissiliunt longe longeque recursant
 in magnis intervallis ; haec aera rarum
 sufficiunt nobis et splendida lumina solis.
 multaue praeterea magnum per inane vagantur,
 conciliis rerum quae sunt reiecta nec usquam 110
 consociare etiam motus potuere recepta.

Cuius, uti memoror, rei simulacrum et imago
 ante oculos semper nobis versatur et instat.
 contemplator enim, cum solis lumina cumque

105-106 *Merrill's (1917 ed.) transposition of paucula (paucua OQG) and cetera is adopted with much hesitation. It is adopted as being somewhat less drastic than Purmann's exclusion of 105 as a variant for 109; however, paucula is surprising, and magnum per inane vagantur seems a strange description of atoms in compounds, however loose the compounds may be, and Purmann may be right* 112 *memoror OQGP: memoro Codex Vaticanus Reg. lat. 1706 simulacrum Itali: simulacra OQG, Merrill (1917), Diels, Büchner*

And to show you more clearly that all the bodies of matter are constantly being tossed about, remember that there is no bottom in the sum of things and the first bodies have nowhere to rest, since space is without end or limit, and I have shown at large and proved by irrefragable reasoning that it extends immeasurable from all sides in all directions.^a Since this stands firm, beyond doubt no rest is granted to the first bodies throughout the profound void, but rather driven by incessant and varied motions, some after being pressed together then leap back with wide intervals, some again after the blow are tossed about within a narrow compass. And all those which being held in combination more closely condensed those which are combined into groups move also. collide and leap back through tiny intervals, caught fast in the complexity of their own shapes, these constitute the strong roots of stone and the bulk of fierce iron and the others of their kind. Of the rest, which go on wandering through the great void, a very few leap far apart and pass far back with long intervals between: these supply thin air for us and the gleaming light of the sun. And many besides wander through the great void which have been rejected from combination with things, and have nowhere been able to obtain admittance and also harmonize their motions.^b

¹¹² Of this fact there is, I recall, an image and similitude always moving and present before our eyes. Do but apply your scrutiny whenever the The motion of

^a See 1.958-1007.

^b The point is that an atom cannot join a compound body, unless (as well as being of suitable size and shape) it can move in harmony with the other component atoms of the object.

inserti fundunt radii per opaca domorum : 115
 multa minuta modis multis per inane videbis
 corpora misceri radiorum lumine in ipso
 et velut aeterno certamine proelia pugnas
 edere turmatim certantia nec dare pausam,
 conciliis et discidiis exercita crebris ; 120
 conicere ut possis ex hoc, primordia rerum
 quale sit in magno iactari semper inani.
 dumtaxat rerum magnarum parva potest res
 exemplare dare et vestigia notitiae.

Hoc etiam magis haec animum te advertere par est
 corpora quae in solis radiis turbare videntur, 126
 quod tales turbae motus quoque materiai
 significant clandestinos caecosque subesse.
 multa videbis enim plagis ibi percita caecis
 commutare viam retroque repulsa reverti, 130
 nunc huc nunc illuc, in cunctas undique partis.
 scilicet hic a principiis est omnibus error :
 prima moventur enim per se primordia rerum ;
 inde ea quae parvo sunt corpora conciliatu
 et quasi proxima sunt ad viris principiorum, 135
 ictibus illorum caecis impulsa cientur,
 ipsaque proporro paulo maiora lacessunt.
 sic a principiis ascendit motus et exit
 paulatim nostros ad sensus, ut moveantur
 illa quoque in solis quae lumine cernere quimus, 140
 nec quibus id faciant plagis apparet aperte.

^a *inane* (116) refers to the air (*cf.* Virgil, *Aen.* 12.906) through which the motes move, not to void in the strict scientific sense. But, like *corpora* in 117, the word is carefully chosen in order to emphasize the parallel with the behaviour of the atoms.

sun's rays are let in and pour their light through a dark room : you will see many minute particles mingling in many ways throughout the void ^a in the light itself of the rays, and as it were in everlasting conflict struggling, fighting, battling in troops without any pause, driven about with frequent meetings and partings ; so that you may conjecture from this what it is for the first-beginnings of things to be ever tossed about in the great void. So far as it goes, a small thing may give an analogy of great things, and show the tracks of knowledge.

¹²⁵ Even more for another reason it is proper that you give attention to these bodies which are seen to be in turmoil within the sun's rays, because such turmoil indicates that there are secret and unseen motions also hidden in matter. For there you will see how many things set in motion by unseen blows change their course and beaten back return back again, now this way, now that way, in all directions. You may be sure that all take their restlessness from the first-beginnings. For first the first-beginnings of things move of themselves ; then the bodies that form a small combination ^b and, as one may say, are nearest to the powers of the first-beginnings, are set moving, driven by the unseen blows of these, while they in their turn attack those that are a little larger. Thus the movement ascends from the first-beginnings and by successive degrees emerges upon our senses, ^c so that those bodies also are moved which we are able to perceive in the sun's light, yet it does not openly appear by what blows they are made to do so.

^b Small atomic aggregates.

^c For the imperceptibility of the motions of the atoms, see 308-332.

Nunc quae mobilitas sit reddita materiai
 corporibus, paucis licet hinc cognoscere, Memmi.
 primum aurora novo cum spargit lumine terras,
 et variae volucres nemora avia pervolitantes 145
 aera per tenerum liquidis loca vocibus opplent,
 quam subito soleat sol ortus tempore tali
 convestire sua perfundens omnia luce,
 omnibus in promptu manifestumque esse videmus.
 at vapor is quem sol mittit lumenque serenum 150
 non per inane meat vacuum ; quo tardius ire
 cogitur, aerias quasi dum diverberat undas.
 nec singillatim corpuscula quaeque vaporis
 sed complexa meant inter se conque globata ;
 quapropter simul inter se retrahuntur et extra 155
 officiuntur, uti cogantur tardius ire.
 at quae sunt solida primordia simplicitate,
 cum per inane meant vacuum nec res remoratur
 ulla foris, atque ipsa, suis e partibus unum,
 unum in quem coepere locum conixa feruntur, 160
 debent nimirum praecellere mobilitate
 et multo citius ferri quam lumina solis
 multiplexque loci spatium transcurrere eodem
 tempore quo solis pervolgant fulgura caelum.

nec persectari primordia singula quaeque, 165
 ut videant qua quidque geratur cum ratione.

152 undas OQGP : umbras F. H. Sandbach, *CR N.S.* 13 (1963) 13-14 164-165 A lacuna between these lines noted by Pontanus. The lost passage was probably of considerable length (fifty-two lines, if, as is likely, a leaf of the archetype was missing). In view of primum (144), there must have been at least one further argument for the speed of the atoms, and the opening of the next paragraph (167 ff.) suggests that Lucr. may have gone on to explain how the atoms, by their movements, formed and form the world and everything in it 166 videant FL : deant OQG : omitted and space left by AB

¹⁴² Now Memmius, what swiftness is granted to the bodies of matter, you may understand from what follows in a few words. First, when the dawn diffuses new light over the earth, and the different birds flitting about through pathless woods through the soft air fill every part with their liquid notes, how suddenly at such time the sun arising is accustomed to envelop and flood the whole world with his light, we see to be plain and manifest to all. But that heat and that light serene which the sun sends, does not pass through empty void ; therefore it is forced to go more slowly, while it beats its way so to speak through waves of air. Nor do the particles of heat move alone and singly, but linked together and massed together ; therefore they are at the same time retarded by one another and obstructed from without, so that they are forced to go more slowly. But the first-beginnings, which are of solid singleness, when they pass through the empty void, are not delayed by anything from without, and being themselves units composed of their own parts,^a when they are carried each to that one point to which their first efforts tend, most certainly they must be of exceeding swiftness and must be carried far more quickly than the light of the sun, and traverse a space many times as wide in the same time that the sun's lightnings take to pervade the heavens.

¹⁶⁵ . . . nor ^b to follow up the first-beginnings separately one by one, that they may see in what way everything is done.

The speed of the atoms is greater than that of light,

which is hindered by the air and because it is a compound,

whereas the atoms are unchecked.

^a Although each atom has a number of minimal parts, it is uncompounded, for the minimal parts are physically inseparable (cf. 1.599-634).

^b For comments on the lacuna, see critical note on 164-165.

At quidam contra haec, ignari materiai,
 naturam non posse deum sine numine credunt
 tanto opere humanis rationibus admoderate
 tempora mutare annorum frugesque creare, 170
 et iam cetera, mortalis quae suadet adire
 ipsaque deducit dux vitae dia voluptas
 et res per Veneris blanditur saecula propagent,
 ne genus occidat humanum. quorum omnia causa
 constituisse deos cum fingunt, omnibu' rebus 175
 magno opere a vera lapsi ratione videntur.
 nam quamvis rerum ignorem primordia quae sint,
 hoc tamen ex ipsis caeli rationibus ausim
 confirmare aliisque ex rebus reddere multis,
 nequaquam nobis divinitus esse creatam 180
 naturam mundi : tanta stat praedita culpa.
 quae tibi posterius, Memmi, faciemus aperta.
 nunc id quod superest de motibus expediemus.

Nunc locus est, ut opinor, in his illud quoque rebus
 confirmare tibi, nullam rem posse sua vi 185
 corpoream sursum ferri sursumque meare.
 ne tibi dent in eo flammaram corpora fraudem ;
 sursus enim versus gignuntur et augmina sumunt,
 et sursum nitidae fruges arbustaque crescunt,
 pondera, quantum in se est, cum deorsum cuncta
 ferantur. 190
 nec cum subsiliunt ignes ad tecta domorum
 et celeri flamma degustant tigna trabesque,

168 credunt *Pontanus* : reddi *OQGP*, *Wakefield*, *Büchner* :
 reddunt (*cf.* 179) *Brieger* : rentur (*cf.* 1.154, 6.91) *Marullus*
 181 tanta stat (*cf.* 5.199) *Lachmann* : quamquam *OQG* : quae
 tanta est *Pontanus* : quanta stat *J. P. Postgate*, *Journ. Phil.*
16 (1888) 127

167 But some ^a in opposition to this, knowing nothing
 of matter, believe that without the gods' power
 nature cannot with so exact conformity to the plans
 of mankind change the seasons of the year, and pro-
 duce crops, and in a word all else which divine
 pleasure, the guide of life, persuades men to ap-
 proach, herself leading them and coaxing them,
 through the ways of Venus, to beget their genera-
 tions, that the human race may not come to an end.
 But when they imagine the gods to have arranged all
 for the sake of men, they are seen to have departed
 widely from true reasoning in every way. For
 although I might not know what first-beginnings of
 things are, this nevertheless I would make bold to
 maintain from the ways of heaven itself, and to de-
 monstrate from many another source, that the nature
 of the universe has by no means been made for us
 through divine power : so great are the faults it
 stands endowed with. All this, Memmius, I will
 make clear to you later ^b ; now I will explain what
 remains to be said about motion.

But some
 believe that
 the gods
 made the
 world for
 man ;

now it is
 too faulty
 for that.

184 This is now the place, as I think, in my theme
 to establish for you another principle : that no bodily
 thing can of its own power be carried upwards and
 move upwards. The particles of fire should not lead
 you into a mistake ; for in an upward direction flames
 are born and win increase, upwards grow trees and
 the bright crops, although all weights tend down-
 wards as far as in them lies. And when fires leap up
 to the roofs of houses and with swift flame devour

No bodily
 thing can
 move up-
 wards un-
 less driven
 by some
 force.

^a " Haec disputantur in Platonem, et in Stoicos " (*Lam-
 binus*).

^b 5.195-234.

sponte sua facere id sine vi subiecta putandum est.
 quod genus e nostro cum missus corpore sanguis
 emicat exultans alte spargitque cruorem. 195
 nonne vides etiam quanta vi tigna trabesque
 respuat umor aquae? nam quo magis ursimus altum
 directa et magna vi multi pressimus aegre,
 tam cupide sursum revomit magis atque remittit,
 plus ut parte foras emergant exiliantque. 200
 nec tamen haec, quantum est in se, dubitamus, opinor,
 quin vacuum per inane deorsum cuncta ferantur.
 sic igitur debent quoque flammae posse per auras
 aeris expressae sursum succedere, quamquam
 pondera, quantum in sest, deorsum deducere pugnent.
 nocturnasque faces caeli sublime volantis 206
 nonne vides longos flammaram ducere tractus
 in quascumque dedit partis natura meatum?
 non cadere in terras stellas et sidera cernis?
 sol etiam caeli de vertice dissipat omnis 210
 ardorem in partis et lumine conserit arva;
 in terras igitur quoque solis vergitur ardor.
 transversosque volare per imbris fulmina cernis:

193 sine OQGP: nisi *D. A. West, CQ N.S. 14 (1964) 96*
 subiecta (sc. flammaram corpora 187) OQGP (cf. *Virgil, G.*
4.385): subigente *Lambinus*, who notes "sic restitui ab uno
 codice manuscripto adiutus" 197 altum seemingly first
 printed in ed. *Juntina (notes)*: altu OQG: alte F: alta
 ABL 199 revomit *Pontanus*: removet OQGP, *Bocke-*
müller, Merrill (1917), Martin, D. A. West, CQ N.S. 14
(1964) 97, but the more violent and vivid word seems more
probable, and for the corruption cf. 6.828, where QU have
movenda for vomenda, and (e.g.) Lucan 6.24 203
 debent quoque flammae *Wakefield (notes only)*. It seems
 preferable to the readings of ed. *Aldina* and Q corr. because
 the transposition affects only two words instead of three:
 quoque debent flammae OQG: debent flammae quoque ed.
Aldina (cf. 1.290, but 6.317 shows that a different order is
possible): flammae quoque debent Q corr., *D. A. West, Rh.*

timbers and beams, we must not think they do this
 of themselves, being shot up without a force. Even
 so when blood is let out from our body, out it spirts,
 leaping forth on high and sprinkling its red drops.
 Do you not see also with what force liquid water
 spits out timbers and beams? For the deeper we
 have thrust them and pushed them right down, press-
 ing laboriously with full force and many together,
 the more eagerly does the water vomit them back
 and shoot them back up, so that they issue forth and
 leap out more than half their length. Yet we do not
 doubt, I think, that, as far as in them lies, these are
 all carried downwards through an empty void. In
 this way, therefore, flames also must be able to rise
 up, squeezed out upwards through the breezes of the
 air, although, as far as lies in them, their weights
 fight to draw them down; and do you not see how
 the nightly torches of the sky fly up aloft and draw
 their long trails of flame in whatever direction nature
 has given them a way? how stars and luminaries
 fall to the earth? The sun also from the pinnacle of
 heaven disperses his heat abroad in all directions and
 sows the fields with light^a; therefore the sun's heat
 tends towards the earth also. And you perceive
 lightnings to fly crosswise along the rain clouds:

^a *Wakefield* quotes *Milton, Paradise Lost 5.1-2*: "Now
 Morn, her rosy steps in th' eastern clime | Advancing, sow'd
 the earth with orient pearl."

Mus. 110 (1967) 195 209 terras (cf. 212, 215) *Havet,*
Martin: terra OQG: terram P 210 caeli (cf. *Cicero,*
Arat. 297) Bernays: omitted by OQG: summo FL: mundi
Stürenberg, W. Hörschelmann (according to Merrill), E.
Orth, Helmantica 11 (1960) 128-129, C. L. Howard, CPhil.
56 (1961) 149

nunc hinc nunc illinc abrupti nubibus ignes
concurant ; cadit in terras vis flammea volgo. 215

Illud in his quoque te rebus cognoscere avemus,
corpora cum deorsum rectum per inane feruntur
ponderibus propriis, incerto tempore ferme
incertisque locis spatio depellere paulum,
tantum quod momen mutatum dicere possis. 220
quod nisi declinare solerent, omnia deorsum,
imbris uti guttae, caderent per inane profundum,
nec foret offensus natus nec plaga creata
principiis : ita nil umquam natura creasset.

Quod si forte aliquis credit graviora potesse 225
corpora, quo citius rectum per inane feruntur,
incidere ex supero levioribus atque ita plagas
gignere quae possint genitalis reddere motus,
avius a vera longe ratione recedit.
nam per aquas quaecumque cadunt atque aera rarum,
haec pro ponderibus casus celerare necessest, 231
propterea quia corpus aquae naturaque tenvis
aeris haud possunt aequae rem quamque morari,
sed citius cedunt gravioribus exsuperata ;
at contra nulli de nulla parte neque ullo 235
tempore inane potest vacuum subsistere rei,
quin, sua quod natura petit, concedere pergat ;

214 abrupti OQGP : abruptis Macrobius, Sat. 6.1.27 (cf. Virgil, Aen. 3.199), D. A. West, CQ N.S. 14 (1964) 97, n. 1, perhaps rightly, but see Statius, Theb. 1.353-354 quoted by Wakefield

^a For a detailed discussion of 184-215, see D. A. West, CQ N.S. 14 (1964) 94-99.

^b The theory of the swerve (*παρέγκλισις*, *clinamen*, *declinatio*, *inclinatio*) of atoms is not described by Epicurus in his extant writings, but is mentioned by Cicero, Philodemus, Plutarch, Diogenes of Oenoanda, and others.

now from this part, now from that, burst the fires
out of the clouds and rush along ; it is a common
thing for the fiery bolt to fall on the earth.^a

216 One further point in this matter I desire you
to understand : that while the first bodies are being
carried downwards by their own weight in a straight
line through the void, at times quite uncertain and
uncertain places, they swerve a little from their
course, just so much as you might call a change of
motion.^b For if they were not apt to incline, all
would fall downwards like raindrops through the pro-
found void, no collision would take place and no blow
would be caused amongst the first-beginnings : thus
nature would never have produced anything.

225 But if by chance anyone believes it to be
possible that heavier elements, being carried more
quickly straight through the void, fall from above on
the lighter, and so deal blows which can produce
generative motions, he is astray and departs far from
true reasoning. For whatever things fall through
water and through fine air, these must speed their
fall in accordance with their weights, because the
body of water and the thin nature of air cannot
delay each thing equally, but yield sooner overcome
by the heavier ; but contrariwise empty void cannot
offer any support to anything anywhere or at any
time, but it must give way continually, as its nature

The atoms
move
downwards,
but have a
slight
swerve at
uncertain
times,
which is the
cause of
their
meeting.

All atoms
fall at the
same speed
through
the void ;

Lucr.'s account (216-293) is the fullest which we have. Epicurus, influenced above all by Aristotle, rejected the determinism of Democritus and believed in the freedom of the individual will, and the theory of the atomic swerve was designed to explain free will (see 251-293) as well as to account for collisions between atoms moving through the void. See Introduction pp. xxxiii-xxxiv.

LIBER QUARTUS

AVIA Pieridum peragro loca nullius ante
 trita solo. iuvat integros accedere fontis
 atque haurire, iuvatque novos decerpere flores
 insignemque meo capiti petere inde coronam
 unde prius nulli velarint tempora Musae : 5
 primum quod magnis doceo de rebus et artis
 religionum animum nodis exsolvere pergo,
 deinde quod obscura de re tam lucida pango
 carmina, musaeo contingens cuncta lepore.
 id quoque enim non ab nulla ratione videtur ; 10
 nam veluti pueris absinthia taetra medentes
 cum dare conantur, prius oras pocula circum
 contingunt mellis dulci flavoque liquore,
 ut puerorum aetas improvida lufidifectur
 labrorum tenuis, interea perpotet amarum 15
 absinthii laticem deceptaque non capiatur,
 sed potius tali pacto recreata valescat,
 sic ego nunc, quoniam haec ratio plerumque videtur
 tristior esse quibus non est tractata, retroque
 volgus abhorret ab hac, volui tibi suaviloquenti 20
 carmine Pierio rationem exponere nostram
 et quasi musaeo dulci contingere melle,
 si tibi forte animum tali ratione tenere

8 pango (*cf.* 1.933) *ABCF* : pando *OQL*, *Wakefield* 17
 pacto *Hainsius in 1.942*, *Lachmann* : atactu *OQ* : attactu *Q*
corr., *ABF* : a tactu *L* : tactu *Lambinus (1570)* : facto
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BOOK 4

A PARNASS country of the Pierides I traverse, where
 no other foot has ever trod. I love to approach Introduc-
tion: the
poet's task.
 virgin springs, and there to drink ; I love to pluck
 new flowers, and to seek an illustrious chaplet for my
 head from fields whence before this the Muses have
 crowned the brows of none : first because my teach-
 ing is of high matters, and I proceed to set free the
 mind from the close knots of superstition ; next
 because the subject is so dark and the verses I write
 so clear, touching every part with the Muses' grace.
 For even this seems not to be out of place ; but as
 with children, when physicians try to administer
 rank wormwood, they first touch the rim of the cups
 all about with the sweet yellow fluid of honey, that
 unthinking childhood may be deluded as far as the
 lips, and meanwhile that they may drink up the
 bitter juice of wormwood, and though beguiled be
 not betrayed, but rather by such means be restored
 and regain health, so now do I : since this doctrine
 commonly seems somewhat harsh to those who have
 not used it, and the people shrink back from it, I
 have chosen to set forth my doctrine to you in sweet-
 speaking Pierian song, and as it were to touch it with
 the Muses' delicious honey, if by chance in such a

(*OQGP in 1.942*) *Lambinus (1563-64, 1565)*, *Gifanius*, *Wake-
field (notes)*, *Martin*

versibus in nostris possem, dum percipis omnem
naturam rerum ac persentis utilitatem. 25

Atque animi quoniam docui natura quid esset
et quibus e rebus cum corpore compta vigeret
quove modo distracta rediret inordia prima,
nunc agere incipiam tibi, quod vementer ad has res
attinet, esse ea quae rerum simulacra vocamus ; 30
quae, quasi membranae summo de corpore rerum
dereptae, volitant ultroque citroque per auras,
atque eadem nobis vigilantibus obvia mentes
terrificant atque in somnis, cum saepe figuras
contuimur miras simulacraque luce carentum, 35
quae nos horriſce languentis saepe sopore
excierunt ; ne forte animas Acherunte reamur
effugere aut umbras inter vivos volitare
neve aliquid nostri post mortem posse relinqui,
cum corpus simul atque animi natura perempta 40
in sua discessum dederint primordia quaeque.
dico igitur rerum effigias tenuisque figuras
mittiſer ab rebus summo de corpore eorum ;
id licet hinc quamvis hebeti cognoscere corde.

43 eorum (cf. 101, 1450) *OQABI* : rerum (cf. 64) *Lachmann*

^a 1-25 = 1.926-950, except for minor variations in 11, 24, 25 and possibly (see critical notes) 8, 17.

^b *simulacra* is Lucr.'s most common term for what Epicurus calls *εἰδῶλα* ("images") or *τύποι* ("impressions"), and it is indeed a literal translation of *εἰδῶλα*. Other words which Lucr. uses less frequently are *imagines*, *effigiae*, *figurae*. The *simulacra*, as he is going to explain, are fine atomic films constantly and rapidly discharged from the surface of all things. When the films, which are similar in shape to the objects from which they emanate, impinge on our eyes, they cause vision ; when they enter our minds, they

way I might engage your mind in my verses, while you are learning to understand the whole nature of things and perceive its utility.^a

²⁶ Now, since I have explained what is the nature of the mind, from what elements it takes its strength when combined with the body, and how when torn away from the body it returns to its first elements, you shall now see me begin to deal with what is of high importance for this subject, and to show that there exist what we call images^b of things ; which, like films^c drawn from the outermost surface of things, flit about hither and thither through the air ; it is these same that, encountering us in wakeful hours, terrify our minds, as also in sleep, when we often behold wonderful shapes and images of the dead, which have often aroused us in horror while we lay languid in sleep^d ; lest by chance we should think that spirits escape from Acheron or ghosts flit about amongst the living, or that anything of us can be left after death, when body and mind both taken off together have dissolved abroad, each into its own first-beginnings. I say, therefore, that semblances and thin shapes of things are thrown off from their outer surface. This can be recognized by the dullest brain from what follows.

cause thoughts or dreams, according to whether we are awake or asleep. Cf. especially Epicurus, *Ep. ad Hdt.* 46-52, Diogenes of Oenoanda fr. 9 Smith, Usener 317-319.

^c *membranae* (cf. 51, 59, 95) is no doubt a translation of *τύποι*, which, though it is not found in Epicurus' extant works, occurs in Diogenes of Oenoanda fr. 10.V.3 Smith.

^d Cf. 1.132-135.

LUCRETIUS

DE RERUM NATURA, 4. 45-70

[Sed quoniam docui cunctarum exordia rerum 45
 qualia sint et quam variis distantia formis
 sponte sua volitent aeterno percita motu
 quoque modo possit res ex his quaeque creati,
 nunc agere incipiam tibi, quod venementer ad has res
 attinet, esse ea quae rerum simulacra vocamus, 50
 quae quasi membranae vel cortex nominandast,
 quod speciem ac formam similem gerit eius imago
 cuiuscumque cluet de corpore fusa vagari.]

Principio quoniam mitunt in rebus apertis
 corpora res multae, partim diffusa solute, 55
 robora ceu fumum mittunt ignesque vaporem,
 et partim contexta magis condensaque, ut olim
 cum teretis ponunt tunicas aestate cicadae,
 et vituli cum membranas de corpore summo
 nascentes mittunt, et item cum lubrica serpens 60
 exuit in spinis vestem (nam saepe videmus
 illorum spoliis vepres volitantibus auctas)—
 quae quoniam fiunt, tenuis quoque debet imago
 ab rebus mitti summo de corpore rerum.
 nam cur illa cadant magis ab rebusque recedant 65
 quam quae tenvia sunt, hiscendist nulla potestas,
 praesertim cum sint in summis corpora rebus
 multa minuta, iaci quae possint ordine eodem
 quo fuerint et formai servare figuram,
 et multo citius, quanto minus indupediri 70

^a 45-53 are bracketed in both text and translation, because it is certain that Lucret. did not intend to retain them. They were evidently written at a time when his plan was that Book 4 should follow Book 2, for 45-48, which are, except for three minor variations, identical to 3.31-34, refer to the subject matter of Books 1-2. When he changed his plan, he wrote a new passage (26-44) in which he referred to the subject matter of Book 3 and included two lines (29-30) from the

⁴⁵ [But ^a since I have shown of what kind are the beginnings of all things, and in how varying and different shapes they fly of their own accord driven in everlasting motion, and how all things can be produced from these, you shall now see me begin to deal with what is of high importance for this subject, and to show that there exist what we term images of things, which are to be called as it were their films or bark, because the image bears a look and shape like the object, whatever it is, from whose body it is shed to go on its way.]

⁵⁴ In the first place, since amongst visible things many throw off bodies, sometimes loosely diffused abroad, as wood throws off smoke and fire heat, sometimes more close-knit and condensed, as often when cicadas drop their neat coats in summer, and when calves at birth throw off the caul from their outermost surface, and also when the slippery serpent casts off his vesture amongst the thorns (for we often see the brambles enriched with their flying spoils): since these things happen, a thin image must also be thrown off from things, from the outermost surface of things. Why thin films should not fall and be thrown off from things as much as those others, ^b no one could whisper a reason, especially since there are numerous minute bodies on the outermost side of things, which can be cast off in the same arrangement they were in before, preserving the shape of the object, and far more quickly, as, being few ^c and

original passage (49-50). (Cf. J. Mewaldt, *Hermes* 43 [1908] 286-295.)

^b If course things are thrown off, as they are, there is the more reason to suppose that fine films are discharged.

^c Few in comparison with the many that compose a solid mass like a cast-off skin.

pauca queunt et quae sunt prima fronte locata.
 nam certe iacere ac largiri multa videmus,
 non solum ex alto penitusque, ut diximus ante,
 verum de summis ipsum quoque saepe colorem.
 et volgo faciunt id lutea rursaque vela 75
 et ferrugina, cum magnis intenta theatris
 per malos volgata trabesque trementia flutant ;
 namque ibi consessum caveai subter et omnem
 scaenai speciem fpatrum matrumque deorum f
 inficiunt coguntque suo fluitare colore. 80
 et quanto circum mage sunt inclusa theatri
 moenia, tam magis haec intus perfusa lepore
 omnia conrident correpta luce diei.
 ergo lintea de summo cum corpore fucum
 mittunt, effigias quoque debent mittere tennis 85
 res quaeque, ex summo quoniam iaculantur utraque.
 sunt igitur iam formarum vestigia certa
 quae volgo volitant subtili praedita filo,
 nec singillatim possunt secreta videri.
 Praeterea omnis odor fumus vapor atque aliae res
 consimiles ideo diffusae e rebus abundant, 91
 ex alto quia dum veniunt intrinsicus ortae,
 scinduntur per iter flexum, nec recta viarum
 ostia sunt qua contendant exire coortae.

71 quae sunt *Lachmann*: sunt *QQP*: sunt in (*cf.* 97) *Q*
corr., *AB* 79 patrum matrumque deorum (*or* deo-
 rumque) *QQP*: patrum coetumque decorum *Munro*:
 patrum turbanque (*earlier* partemque) decoram *M. P.*
Smith: personarumque decorum *K. Müller*. *Many other*
suggestions have been made 92 intrinsicus *Lambinus*:
 extrinsecus *QQP* (*for the corruption cf.* 6.1099)

^a The reference is to 56, where Lucretius mentions smoke and heat, but not until 90-94 does he explain that they come from deep inside things.

stationed in the front rank, they are less able to be impeded. For assuredly we see many things cast off particles with lavish bounty, not only from the depths and from within (as we said before)^a but from the outermost surface, amongst others colour not seldom. This is often done by yellow and red and dark purple awnings, when outspread in the public view over a great theatre^b upon posts and beams they tremble and flutter; for then they dye, and force to flutter in their own colour, the assembly in the great hollow below, and all the display of the stage . . . ; and the more the walls of the theatre are enclosed all round, the more all within laughs in the flood of beauty when the light of day is thus confined. Therefore, since canvas throws off colour from its outermost surface, everything else must also cast off thin resemblances, because in each case they throw off from the outermost surface. There are therefore fixed outlines of shapes and of finest texture which flit about everywhere, but singly and separately cannot be seen.

⁹⁰ Besides, all smell, smoke, heat and other such things stream away from objects all diffused abroad, for this reason, because they arise from the depths, and as they come forth they are torn up in their tortuous course, there being no direct openings to the paths to let them push out together when they have

^b Rome's first stone theatre was constructed in 55 B.C., so that Lucretius is presumably referring to temporary theatres with wooden seats and stage. Awnings were first used in 78 B.C. Sockets for the masts that supported the awnings can still be seen in some Roman theatres. See now R. Graefe, *Vela erunt: die Zelttücher der römischen Theater und ähnlicher Anlagen*, Mainz (1979).

at contra tenuis summi membrana coloris 95
 cum iacitur, nil est quod eam discerpere possit,
 in promptu quoniam est in prima fronte locata.
 Postremo speculis in aqua splendoreque in omni
 quaecumque apparent nobis simulacra, necessest,
 quandoquidem simili specie sunt praedita rerum, 100
 ex ea imaginibus missis consistere eorum. 101
 sunt igitur tenues formae rerum similesque 104
 effigiae, singillatim quas cernere nemo 105
 cum possit, tamen adsiduo crebroque repulsu
 reiectae reddunt speculorum ex aequore visum,
 nec ratione alia servari posse videntur,
 tanto opere ut similes reddantur cuique figurae.

Nunc age quam tenui natura constet imago 110
 percipe. et in primis, quoniam primordia tantum
 sunt infra nostros sensus tantoque minora
 quam quae primum oculi coelegant non posse tueri,
 nunc tamen id quoque uti confirmem, exordia rerum
 cunctarum quam sint subtilia percipe paucis. 115
 Primum animalia sunt iam partim tantula, quorum
 tertia pars nulla possit ratione videri.
 horum intestinum quodvis quale esse putandumst?
 quid cordis globus aut oculi? quid membra? quid
 artus?
 quantula sunt? quid praeterea primordia quaeque

101 ex ea *H. Lotze*: ex *OQ*: exin *H. Parrmann* 102-
 103 = 65-66, *excluded by all modern editors* 104 formae
 rerum similesque *H. Parrmann*, *Munro*: formarum dissi-
 milesque *OQP*: formarum illis similesque *Loachmann*

^a The phenomenon of the mirror is introduced again in
 150-167, 269-323. Cf. *Diogenes of Oenoanda* fr. 9.1.4-12
 284

gathered together. But contrariwise when a thin
 film of surface colour is thrown off, there is nothing
 to tear it up, since it lies in front and on the very
 outside.

⁹⁸ Lastly, whatever similitudes we see in mirrors, ^a (4) Mirrors
 in water, in any bright surface, since they are pos-
 sessed of the same appearance as the things, must
 consist of images thrown off from those things. There
 are therefore thin shapes and like semblances of
 things, which singly no one can perceive, yet being
 flung back by incessant and unremitting repulsion
 give back a vision from the surface of mirrors. Nor
 does there seem to be any other way in which they
 could be preserved so that figures so like each thing
 should be given back.

¹¹⁰ Now listen and learn how thin the structure of
 this image is. ^b And in the first place, since the first-
 beginnings are so far below our senses, and so much
 smaller than the point at which our eyes begin not to
 be able to see, now to confirm this yet further, let
 me explain in a few words how fine are the elements
 of all things.

¹¹⁶ Firstly, there are some living creatures so small
 that their third part cannot possibly be seen. What
 must you suppose one of their guts is like? the ball
 of the heart, or the eyes? the limbs and members?
 How small are they? What further of the first-

Smith: "[And] often mirrors too will be my witnesses [that
 likenesses] and appearances are real [entities]. For what I say
 will certainly not be denied at all by the reflection which will give
 supporting evidence on oath in the mirrors."
^b For the unsurpassed fineness of the images, cf. Epicurus,
Ep. ad Hdt. 47.

LUCRETIUS

DE RERUM NATURA, 4. 121-142

unde anima atque animi constet natura necessumst ?
 nonne vides quam sint subtilia quamque minuta ?

Præterea quaecumque suo de corpore odorem
 expirant acrem, panaces absinthia taetra
 habrotonique graves et tristia centaurea, 125
 quorum unum quidvis leviter si forte duobus

quin potius noscas rerum simulaera vagari
 multa modis multis nulla vi cassaque sensu ?

Sed ne forte putes ea demum sola vagari,
 quaecumque ab rebus rerum simulaera recedunt, 130

sunt etiam quae sponte sua gignantur et ipsa
 constituuntur in hoc caelo qui dicitur aer,

135 quae multis formata modis sublimè feruntur ;

133 ut nubes facile interdum concresecere in alto
 134 cernimus et mundi speciem violare serenam,

aera mulcentes motu ; nam saepe Gigantum

ora volare videntur et umbram ducere late,
 interdum magni montes avolsaque saxa

montibus anteire et solem succedere praeter,

inde alios trahere atque inducere belua nimbos. 140

nec speciem mutare suam liquentia cessant
 et cuiusque modi formarum vertere in oras.

126 *A lacuna after this line noted with a cross by Q corr.*
See note on translation

^a After 126 a passage, probably of considerable length, is
 missing. The words in square brackets give the probable sense of
 the first part of the lost passage.

^b *e.g.* powers of speech or reasoning. Cf. Diogenes of Oe-
 noanda fr. 10. IV. 11-14 Smith.

^c *cassa* ... *sensu* (128) means not "unable to be perceived",
 but, as Pius says "*vacua et pricta sensu*". 127-128 are the
 closing lines of an argument against the Democritean view that
 286

beginnings which must compose the nature of their
 mind and spirit ? Do you not see how fine and how
 minute they are ?

¹²³ Besides, anything that exhales a pungent smell
 from its body, heal-all, rank wormwood, strong
 southernwood, bitter centaury, any one of which, if
 by chance [you hold it] lightly between two [fingers,
 will impart its smell to them ; and yet the particles
 that cling to them are invisible.]^a

¹²⁷ . . . but that you should rather recognize that
 many similitudes are moving about in many ways,
 without any intrinsic quality^b and devoid of sensation.^c

¹²⁹ But that you may not think these images which
 pass off from things to be the only ones that move
 about, there are others which arise of themselves
 and are formed by themselves in this part of the sky
 called the air^d, which formed in many ways are
 carried aloft : as we sometimes see clouds quickly

massing together on high and marring the serene
 face of the firmament, while they caress the air with
 their motion. For often giants' countenances appear
 to fly over and to draw their shadow afar, sometimes
 great mountains and rocks torn from the mountains
 to go before and to pass by the sun, after them some
 monster pulling and dragging other clouds ; they
 never cease to dissolve and change their shapes and
 turn themselves into the outlines of figures of every
 kind.

simulaera are sentient and rational. Cf. Diogenes of Oenocanda
 fr. 10.43 Smith, and see A. Barigazzi, *Emerita* 49 (1981) 1-15.

^d The formation of compound images in the air is mentioned
 by Epicurus, *Ep. ad Hdt.* 48. The present passage should be
 compared with 732-748.

Nunc ea quam facili et celeri ratione genantur
perpetuoque fluant ab rebus lapsaque cedant

semper enim summum quicquid de rebus abundat 145
quod iaculentur. et hoc alias cum pervent in res,
transit, ut in primis vitrum. sed ubi aspera saxa
aut in materiam ligni pervent, ibi iam
scinditur, ut nullum simulacrum reddere possit.
at cum splendida quae constant opposta fuerunt 150
densaque, ut in primis speculum est, nil accidit
horum ;

nam neque, uti vitrum, possunt transire, neque autem
scindi ; quam meminit levor praestare salutem.
quapropter fit ut hinc nobis simulacra redundant.
et quamvis subito quovis in tempore quamque 155
rem contra speculum ponas, apparet imago ;
perpetuo fluere ut noscas e corpore summo
texturas rerum tenuis tenuisque figuras.

ergo multa brevi spatio simulacra genantur,
ut merito celer his rebus dicatur orgo. 160
et quasi multa brevi spatio summittere debet
lumina sol ut perpetuo sint omnia plena,
sic ab rebus item simili ratione necessest
temporis in puncto rerum simulacra ferantur
multa modis multis in cunctas undique partibus, 165
quandocumque speculum quocumque obvertimus oris,
res ibi respondent simili forma atque colore.
Praeterea modo cum fuerit liquidissima caeli

144 *A lacuna after this line noted by Lachmann. The missing verse was perhaps similar or identical to 2.66 expeditam : tu te dicis praebere memento or 4.931 expeditam : tu fac ne ventis verba profundam* 147, 152 vitrum (*cf. 601-602*) *Oppenrieder* : vestem *OQP*, *Briegler*, *Merrill*, *Diels*, *Martin*, *Ernout*, *Büchner*, but see *Bailey* 166 oris (*cf. 142*) *Q* : omitted by *O* : illud *P* : omnis (*cf. 242*) *Isaac*

143 Now [let me tell you] how easily and quickly the images arise, constantly flowing off from things and gliding away.^a For there is always something streaming from the outermost surface of things for them to shoot off. And this when it meets some things passes through, particularly through glass. But when it meets rough stone or solid wood, there at once it is broken, so that it can give back no image. But when the opposed object is bright and compact, as particularly a mirror, nothing happens of this sort ; for the images cannot pass through as through glass, nor again can they be broken : so much safety the smoothness never forgets to afford. Therefore it follows that the images stream back from it upon us. And no matter how suddenly you place any object before a mirror at any time, its image appears, so that you may recognize that there is a constant flow from the surface of things of thin textures and thin shapes. Therefore many images arise in brief space, so that there is good reason to call the origin of these things rapid. And just as the sun must send up many lights in brief space, that all places may be full of them without a break, so in like manner from things also it must be that in a moment of time many images pass off in many ways and in all directions everywhere, since in whatever direction we turn the mirror to the shapes of things, something answers back of like form and colour.

168 Besides, when the weather has but now been of and how

^a Epicurus, *Epp. ad Hat.* 48, says that the creation of the images is as quick as thought.

^a *Voss* (see *Havercamp*), not *Cartault* as stated by recent editors : orbis (*gen. after quocumque*) *E. Orth*, *Helmantica* 11 (1960) 316

tempestas, perquam subito fit turbida foede,
 undique uti tenebras omnis Acherunta rearis 170
 liquisse et magnas caeli comlesse cavernas :
 usque adeo taetra nimborum nocte coorta
 inpendent atrae formidinis ora superne ;
 quorum quantula pars sit imago dicere nemost
 qui possit neque eam rationem reddere dictis. 175

Nunc age, quam celeri motu simulacra ferantur
 et quae mobilitas ollis tranantibus auras
 redita sit, longo spatio ut brevis hora teratur,
 in quem quaeque locum diverso numine tendunt,
 suavidicis potius quam multis versibus edam ; 180
 parvus ut est cyeni melior canor, ille grauum quam
 clamor in aetheriis dispersus nubibus austri.

Principio persaepe levis res atque minutis
 corporibus factas celeris licet esse videre.
 in quo iam genere est solis lux et vapor eius, 185
 propterea quia sunt e primis facta minutis
 quae quasi cudentur perque aeris intervallum
 non dubitant transire sequenti concita plaga ;
 supeditatur enim confestim lumine lumen,
 et quasi protelo stimulat fulgere fulgur. 190
 quapropter simulacra pari ratione necesse est
 inmemorable per spatium transcurrere posse
 temporis in puncto, primum quod parvola causa

^a Cf. 1.64-65 and see D. West, *The Imagery and Poetry of Lucretius* 58. 170-173 = 6.251-254 with one minor variation.

^b The argument of 174-175 is compressed. The idea is that, if clouds can be formed so swiftly, the images (which are far, far smaller than clouds) will be formed with almost unimaginable rapidity.

the clearest, all on a sudden the sky becomes ugly ^{swiftly} and turbid, so that you might think all the darkness ^{clouds} had deserted Acheron from all sides and filled full the great caverns of the sky : so completely has the loathsome night of clouds gathered together, and black faces of fear hang over us on high ^a : of which clouds how small a fraction the image is, no man can tell or give any reasonable account.^b

¹⁷⁶ Now listen : how rapid is the motion which ^{The speed} carries the images along, and what velocity has ^{of the} been given to them in swimming through the air, so that but a brief time is spent over a long space,^c to whatever part they tend with diverse inclination, this I will tell in verses few but sweet-voiced, as the short song of the swan is better than that honking of cranes, spread abroad in the skyey clouds of the south.^d

¹⁸³ In the first place, you may very often see that ^{(1) Light} things light and made of minute elements are rapid. ^{and small} An example of these is the sun's light and his heat, ^{things in} because they are made of minute elements, which ^{general} are as it were beaten with knocks, and do not hesitate to pass through the intervening air when struck by the blow of that which follows ; for instantly light comes up behind light, and flash is pricked on by flash, as in a long team.^e Therefore the images in like manner must be able to run through space inexpressible by words in a moment of time, first be-

^a Epicurus, *Ep. ad Hdt.* 47, states that the velocity of the images is unsurpassed.

^b 180-182 (= 909-911) are, as Lambinus points out, very similar to lines of Antipater of Sidon (*Anth. Pal.* 7.713.7-8).

^c For the literal meaning of *protelum* see note on 2.531.

LUCRETIVS

DE RERVM NATVRA, 4. 194-216

est procul a tergo quae provehat atque propellat,
 quod superest, ubi tam voluceri levitate ferantur, 195
 deinde quod usque adeo textura praedita rara
 mittuntur, facile ut quasvis penetrare queant res
 et quasi permanare per aeris intervallum.
 Praeterea si quae penitus corpuscula rerum
 ex altoque foras mittuntur, solis uti lux 200
 ac vapor, haec puncto cernuntur lapsa diei
 per totum caeli spatium diffundere sese
 perque volare mare ac terras caelumque rigare,
 quid quae sunt igitur iam prima fronte parata,
 cum iaciuntur et emissum res nulla moratur ? 205
 quone vides citius debere et longius ire
 multiplexque loci spatium transcurrere eodem
 tempore quo solis pervolgant lumina caelum ?
 Hoc etiam in primis specimen verum esse videtur
 quam celeri motu rerum simulacra ferantur, 210
 quod simul ac primum sub diu splendor aquai
 ponitur, extemplo caelo stellante serena
 sidera respondent in aqua radiantia mundi.
 iamne vides igitur quam puncto tempore imago
 aetheris ex oris in terrarum accidat oras ? 215
 quare etiam atque etiam mira fateare necessest

216 mira *QPP*: mitti *Lambinus* (not *Lachmann* as stated by most modern editors). If *mira* is retained, *H. Parman* must be right in assuming a lacuna after 216, and *mira* will have qualified (e.g.) mobility in the next line. *Bailey* makes 216 the start of a new passage, but, in view of quare etiam atque etiam, this cannot be right. The new passage should begin before 217, but after 216, the opening of it being lost. 217-229 are repeated, with a few minor variations, in 6.923-935, and the reviser of this work thinks it most probable that 217 was preceded by two lines identical or almost identical to 6.921-922, and that those two lines were preceded by lines in which the new subject was introduced. Moreover, if the loss 292

cause there is a very small impulse ^a far behind which carries them on and pushes them on, also because they move with so swift a lightness, next because they are emitted with such a rarefied texture that they can easily penetrate anything, and as it were ooze through the intervening air.

199 Besides, if those particles of things that are sent forth from their depths, like the sun's light and heat, are observed to glide and diffuse themselves abroad in a moment of time through the whole space of heaven, to fly over the sea and land and to flood the sky, what then of those which are ready on the very outside, when they are cast off and nothing impedes their discharge? Do you not see that they must travel so much the faster and farther, and run over many times the space in the same time as the sun's light takes to spread abroad over the sky?

209 This further seems a true and pre-eminent indication to show with how rapid a motion the images are borne along, that as soon as the brightness of water is laid in the open air under a starry sky, at once the serene constellations of the firmament answer back twinkling in the water. Now do you see therefore how in an instant an image falls from the borders of heaven to the borders of earth? Therefore again and again I say you must confess

^a The reference is apparently to the constant vibration of the atoms of compound bodies, which causes the atoms on the surface of objects to be discharged as *simulacra parvula* probably has concessive force.

of a page of the archetype was responsible for the disappearance of the lines, it is possible that we have also lost an argument that intervened between the passage on the speed of the films and the passage on effluences

corpora quae feriant oculos visumque lacescant.
 perpetuoque fluunt certis ab rebus odores ;
 frigus ut a fluviis, calor ab sole, aestus ab undis
 aequoris exesor moerorum litora circum ; 220
 nec variae cessant voces voltare per auras ;
 denique in os salsi venit umor saepe saporis,
 cum mare versamur propter, dilutaque contra
 cum tuimur misceri absinthia, tangit amaror.
 usque adeo omnibus ab rebus res quaeque fluenter
 fertur et in cunctas dimittitur undique partis, 226
 nec mora nec requies interdatur ulla fluendi,
 perpetuo quoniam sentimus, et omnia semper
 cernere odorari licet et sentire sonare.
 Praeterea quoniam manibus tractata figura 230
 in tenebris quaedam cognoscitur esse eadem quae
 cernitur in luce et claro candore, necessessest
 consimili causa tactum visumque moveri.
 nunc igitur si quadratum temptamus et id nos
 commovet in tenebris, in luci quae poterit res 235
 accidere ad speciem quadrata, nisi eius imago ?
 esse in imaginibus quapropter causa videtur
 cernundi neque posse sine his res ulla videri.
 Nunc ea quae dico rerum simulacra feruntur
 undique et in cunctas iaciuntur didita partis ; 240
 verum nos oculis quia solis cernere quimus,

[that the images move] with a marvellous [velocity].

[.]
 In the first place, from everything we see there must of necessity continually flow and discharge and scatter] ^a bodies which strike our eyes and excite vision. And there is a continual flow of odours from certain things, as there is of cold from rivers, heat from the sun, surge from the waves of the sea, that devourer of walls about the shore. Manifold voices also fly through the air without ever slackening. Again, a moisture salt to the taste often comes into our mouth when we walk by the sea, and when we see wormwood being mixed with water in our presence, we have a sense of bitterness. So true it is that from all things the different qualities pass off in a flow, and disperse in every direction around ; there is no delay, no rest to interrupt the flow, since we constantly feel it, and we can at all times see all things, smell them, and perceive their sound.

230 Besides, since a shape handled in the dark is recognized to be the same which is seen in the clear light by day, it must be that touch and sight are moved by a like cause. Now, therefore, if we take hold of something square and it excites our feeling in the dark, in the light what square thing can fall upon our vision, if not an image of it ? Therefore there is seen to be in images a cause of vision, and without these nothing can be seen.

239 Now the images of things I speak of are being carried all about and thrown off scattered abroad in all directions ; but because it is only with eyes we

^a On the lacuna and its probable contents, see critical note on 216.
294

These images are scattered everywhere ;
295

LUCRETIIUS

DE RERUM NATURA, 4. 242-269

propterea fit uti, speciem quo vertimus, omnes
res ibi eam contra feriant forma atque colore.

Et quantum quaeque ab nobis res absit, imago
efficit ut videamus et internoscere curat ; 245

nam cum mittitur, extemplo protrudit agitque
aera qui inter se cumque est oculosque locatus,
isque ita per nostras acies perlabitur omnis
et quasi perterget pupillas atque ita transit.

251 propterea fit uti videamus quam procul absit 250

250 res quaeque ; et quanto plus aeris ante agitatur
et nostros oculos perterget longior aura,
tam procul esse magis res quaeque remota videtur.

scilicet haec summe celeri ratione geruntur,
quale sit ut videamus et una quam procul absit. 255

Illud in his rebus minime mirabile habendumst,
cur, ea quae feriant oculos simulacra videri
singula cum nequeant, res ipsae perspiciantur.

261 acre fluit frigus, non privam quamque solemus 260

260 particulam venti sentire et frigoris eius,
sed magis unorsum, ferique perinde videmus
corpore tum plagas in nostro tamquam aliquae res
verberet atque sui det sensum corporis extra.

praeterea lapidem digito cum tundimus, ipsum 265
tangimus extremum saxi summumque colorem,
nec sentimus eum tactu, verum magis ipsam
duritiam penitus saxi sentimus in alto.

Nunc age, cur ultra speculum videatur imago

^a Strictly speaking, we never see an object itself, but only the image produced by the continuous stream of *simulacra* from the object.

^b This example is more complex. We touch the surface 296

can perceive them, therefore it happens that where
we turn our sight, there all things strike upon it with
shape and colour.

²⁴⁴ And the image enables us to see and takes care they enable
that we distinguish how far each thing is distant us to judge
from us ; for when it is sent off, at once it pushes and distance.
drives all the air that is between itself and our eyes,
and thus this air all streams through our eyes and,
as it were, brushes the pupils and thus passes through.

This is how we come to see how far off each thing is ;
and the more air is driven before it, the longer the
breeze that brushes our eyes, the more distant and
far removed the thing is seen to be. Assuredly all
this passes in a supremely rapid manner, so that we
see all at once both what it is and how far away.

All this is
very swift.

²⁵⁶ But in this regard it should not be thought at
all wonderful why the objects themselves ^a are per-
ceived, and yet the images that strike our eyes can-
not be seen singly. For when the wind also beats
upon us little by little, and when sharp cold flows
upon us, we are not accustomed to feel every single
particle of that wind and that cold, but rather the
whole at once, and we see that the blows take effect
upon our body exactly as if some object were striking
us and giving us the feeling of its own body outside.
Besides, when we knock a stone with a toe, we
touch just the uppermost surface of the stone, and
the outermost colour, but we do not feel this by the
touch, but rather we perceive the real hardness of
the stone in its inmost depths.^b

We cannot
perceive
the single
image any
more than
the single
particles of
wind or
cold, or all
the parts of
a stone.

²⁶⁹ Now listen while I tell why the image is seen We see
colour, but we feel hardness (not the colour) by the combined
effects of the lower strata.

percipere ; nam certe penitus remmota videtur. 270
 quod genus illa foris quae vere transpiciuntur,
 ianua cum per se transparentum praebet apertum,
 multa facitque foris ex aedibus ut videantur ;
 is quoque enim duplici geminoque fit aere visus :
 primus enim citra postes tum cernitur aer, 275
 inde fores ipsae dextra laevaque sequuntur,
 post extraria lux oculos perterget et aer
 alter et illa foris quae vere transpiciuntur.
 sic ubi se primum speculi protecit imago,
 dum venit ad nostras acies, protrudit agitque 280
 aera qui inter se cunququest oculosque locatus,
 et facit ut prius hunc omnem sentire queamus
 quam speculum ; sed ubi speculum quoque sensimus
 ipsum,
 continuo a nobis illuc quae fertur imago
 pervenit, et nostros oculos reiecta revisit, 285
 atque alium prae se propellens aera volvit,
 et facit ut prius hunc quam se videamus, eoque
 distare ab speculo tantum semota videtur.
 quare etiam atque etiam minime mirarier est par,

illis quae reddunt speculorum ex aequore visum, 290
 aeribus binis quoniam res confit utraque.

Nunc ea quae nobis membrorum dextera pars est
 in speculis fit ut in laeva videatur eo quod,
 planticem ad speculi veniens cum offendit imago,

270 remmota Q : remota OP : semota (cf. 288) *Marrullus*.
 284 illuc W. S. Watt, *Mus. Helv.* 47 (1990) 123: in eum OQP:
 in id haec Lambinus (1570): in idem Munro: itidem C. L.
Howard, Phil. 45 (1961) 152-153 289 A lacuna after this
 line noted by P. E. Goebel. Bailey suggests e.g. hoc illis fieri,
 quae transpiciuntur, idemque

beyond the mirror ; for certainly it seems to be far the image
 withdrawn. It is the same as with those objects beyond the
 which are seen in their reality^a through the doors
 outside, when the doorway provides an open view
 through it and allows us to see from the house many
 things outside. For this vision also is brought about
 by two distinct stretches of air ; for first in this case
 is seen the air on this side of the doors, next follows
 the door itself right and left leaf, afterwards the ex-
 ternal light brushes the eyes, and the other air, and
 those things which are seen in their reality through
 the doors outside. So when the image of the mirror
 has first thrown itself forwards, while it is on the way
 to our eyes, it pushes and drives all the air that is
 between itself and our eyes, and makes us able to
 perceive all this before we perceive the mirror ; but
 when we have perceived the mirror itself also, at once
 the image which is carried from us to the mirror
 reaches it, and being flung back, comes back to our
 eyes, rolling and propelling before it another air, and
 makes us see this before we see itself ; and that is
 why it seems to be withdrawn so far off from the
 mirror. Therefore again and again I say, it is by
 no means right to wonder [that this happens both to
 those things which are seen through doors and also]^b
 to those things which give back a vision from the
 surface of a mirror, since the whole is done by two
 airs in each case.

²⁹² Next, that which is the right side of our frame The mirror
 appears in a mirror on the left, for this reason, that reverses the
 when the approaching image hits on the flat of the cause the
 image, be-

^a In contrast with the images in the mirror.
^b The words in square brackets translate the line supplied
exempli gratia by Bailey (see critical note).

LUCRETIUS

DE RERUM NATURA, 4. 295-320

non convertitur in columnis, sed recta retrorsum 295
 sic eliditur, ut si quis, prius arida quam sit
 cretea persona, adlidat pilaeve trabive,
 atque ea continuo rectam si fronte figuram
 323 servet et elisam retro sese exprimat ipsa :
 324 fiet ut, ante oculus fuerit qui dexter, ut idem 300
 nunc sit laevus, et e laevo sit mutua dexter.
 Fit quoque de speculo in speculum ut tradatur
 imago,
 quinque etiam aut sex ut feri simulacra suerint.
 nam quaecumque retro parte interiore latebunt,
 329 inde tamen, quamvis torte penitusque remota, 305
 omnia per flexos aditus educta licebit
 pluribus haec speculis videantur in aedibus esse :
 usque adeo speculo in speculum translucet imago,
 et cum laeva data est, fit rursum ut dextera fiat,
 334 inde retro rursum redit et convertit eodem. 310
 Quin etiam quaecumque latuscula sunt speculorum
 adsimili lateris flexura praedita nostri,
 dextera ea propter nobis simulacra remittunt,
 aut quia de speculo in speculum transferitur imago,
 339 inde ad nos elisa bis advolat, aut etiam quod 315
 circum agitur, cum venit, imago propterea quod
 flexa figura docet speculi convertit ad nos.
 Indugredi porro pariter simulacra pedemque
 ponere nobiscum credas gestumque imitari
 344 propterea quia, de speculi qua parte recedas, 320

299-347 *Q corr. restores the correct order of lines. Qd have 299-322 and 323-347 (line numbers as given above on the right) in the wrong order, evidently because a loose leaf of the archetype had been turned the wrong way*

* The reference is to a horizontally concave mirror, which reflects the image twice (and therefore reverses it twice) so restoring it like the original. On the phenomenon described 300

mirror, it is not turned round unaltered, but is thrust image is out straight backwards, just as if someone should dash upon a pillar or beam some mask of plaster before it were dry, and if it should at once keep its shape undistorted in front and mould a copy of itself dashed backwards : it will happen that what was formerly the right eye now becomes the left, and that the left becomes right in exchange.

302 An image may also be transmitted from mirror to mirror, so that as many as five or six images may be have often been produced. For whatever lies hidden behind in the inner parts of a house, however tortuous and secluded be the ways in between, may yet be all brought out through these involved passages by means of a number of mirrors and seen to be in the house. So truly does the image shine across from mirror to mirror ; and when it has been presented left, it becomes right again, then once more it comes back again and returns to the same position.

311 Moreover, all mirrors that have little sides curved in the same degree as our sides return the images right to our right,^a either for the reason that the image is carried across from one side of the mirror to the other and then flies to us after being twice dashed off, or indeed because the image is driven round when it has arrived, since the curved shape of the mirror teaches it to turn round towards us.

318 Furthermore, when the images march along with us and set down the foot with ours and mimic our gestures, you may believe the reason to be that from whatever part of the mirror you may move, at

by Lucr. in 311-317, see especially Munro, Ernout-Robin, Leonard-Smith.

continuo nequeunt illinc simulacra reverti,
omnia quandoquidem cogit natura referri
347 ac resilire ab rebus ad aequos reddita flexus.

299 Splendida porro oculi fugitant vitantque tueri.

300 sol etiam caecat, contra si tendere pergas, 325

propterea quia vis magnast ipsius et alte

aera per purum graviter simulacra feruntur

et ferunt oculos turbantia composituras.

praeterea splendor quicumque est acer adurit

305 saepe oculos ideo quod semina possidet ignis 330

multa, dolorem oculis quae gignunt insinuando.

Lurida praeterea fiunt quaecumque tuentur

arguati, quia luroris de corpore eorum

semina multa fluunt simulacris obvia rerum,

310 multaque sunt oculis in eorum denique mixta, 335

quae contage sua palloribus omnia pingunt.

E tenebris autem quae sunt in luce tuemur

propterea quia, cum propior caliginis aer

ater init oculos prior et possedit apertos,

315 insequitur candens confestim lucidus aer, 340

qui quasi purgat eos ac nigras discutit umbras

aeris illius; nam multis partibus hic est

mobilior multisque minutior et mage pollens.

qui simul atque vias oculorum luce replevit

320 atque patefecit quas ante obsederat aer 345

321 ater, continuo rerum simulacra sequuntur

322 quae sita sunt in luce, laccessuntque ut videamus.

345 aer *Bernays*: ater *OP*: a. et *Q* 346 ater (*cf.* 339)

Bernays: omitted by *QJP*: perhaps aer, reading ater in 345 (*M. F. Smith*)

* "He refers no doubt to the angle of reflexion being equal to the angle of incidence." (*Munro*).

once the images are unable to return back from that part, since nature compels them all to be carried back and leap back from things, given back at equal angles.^a

324 Bright objects, moreover, the eyes avoid and try not to see. The sun actually blinds if you persist in staring against it, because its own power is great, and from on high through the pure air the images come heavily rushing, and strike the eyes so as to disturb their structure. Besides, whatever brightness is fierce often burns the eyes, because it contains many seeds of fire which cause pain to the eyes by penetrating.

332 Moreover, jaundiced persons see everything a greenish-yellow, because many seeds of this greenish-yellow colour stream out from their bodies to meet the images of things, and besides many are mingled in their own eyes which by their contact paint everything with lurid hues.

337 Again we see out of the dark what is in the light, because, when the black air of darkness, being nearer, has entered our open eyes first and possessed them, there follows immediately a bright clear air, which as it were purges them and beats abroad the black shades of the first air; for this bright air is far more mobile and made of far more minute elements and more powerful. As soon as this has filled up again the channels of the eyes^b with light, and opened them out after being beset by that black air, at once those images of things follow that are in the

^a Bailey thinks that *vias oculorum* probably means "the ways to the eyes," *i.e.* in the outer air, but this interpretation seems less natural.