

## The After-Lives of Vain Women in *The Rape of the Lock*: Pope's Sylphs and the "Corpuscular Philosophy" of Robert Boyle

Kathryn Walls

Alexander Pope addressed natural philosophy directly in the works of his maturity. While he admired Isaac Newton (if, that is, his famous tribute of 1730 may be taken at face value), his evident awe at the natural world as revealed by the scientists yields, in the *Essay on Man*, to the Scriblerian declaration that "all our Knowledge is, OURSELVES TO KNOW" (epistle 4, line 398), and his caricatures of the antiquarian, the Egyptologist, the horticulturalist and the butterfly collector in the fourth book of the *Dunciad* (lines 347-458) represent the virtuosi as obsessive, solipsistic, competitive, and unprincipled. One of the titles bestowed by the Goddess Dulness is "F.R.S." (*Dunciad* 4, line 570) – Fellow of the Royal Society. Pope's youthful attitude was probably less clear-cut (although the *Rape of the Lock* does contain some incidental mockery of the virtuosi). The subject of this article is not, however, Pope's attitude to science. It is, rather, his poetic exploitation of it in the *Rape of the Lock*, his early masterpiece. Pope's account of the sylphs (canto 2, lines 55-68) is indebted to the hypotheses of Robert Boyle, the greatest English scientist of the seventeenth century.

As Ariel explains to Belinda (*Rape of the Lock* 1.47-66), the sylphs are the spirits of women who have died ("As now your own, our Beings were of old, / And once enclos'd in women's beauteous Mold; / Thence, by a soft Transition, we repair / From earthly vehicles to these of Air," [1.46-49]). As they appear in the plates designed by Louis du Guernier for the 1714 edition, the sylphs do not invite consideration in the light of early chemistry. They are modelled, by contrast, on the anthropomorphic angels that were a leitmotif in the plates for the 1688 edition of *Paradise Lost*. But the sylphs are, according to Pope's text, invisible. In this they are unlike their obvious antecedents, which include (along with Milton's angels) the gods of the classical epic, and the fairies of *A Midsummer Night's Dream*. Their invisibility is important, because it testifies to their non-existence and thus to the childish credulousness of the "Fair and Innocent" (1.40) which is one of Pope's satiric targets. It goes without saying that Boyle hypothesized an existence for his corpuscles, but he never pretended to have seen them. Their invisibility was surely a major factor (and perhaps the key factor) in Pope's adoption of them as a model for his fantastical sylphs. To speak of models, however, is to suggest that Pope worked methodically in relation to his sources, when the process at stake was in all likelihood intuitive if not wholly unconscious. John Livingstone Lowes famously imagined Coleridge's unconscious as a "deep well" within which fragments from his reading came together, or – as Lowes put it – "synthesized magically." "The 'deep well of unconscious cerebration,'" wrote Lowes, "underlies your consciousness and mine, but in the case of genius its waters are possessed of a peculiar potency" (59). Lowes was writing close to a century ago, and his tone seems unnecessarily portentous, but his critical stance is applicable to Pope.

But all this is to anticipate the argument. This argument is built on (and in turn reinforces) the assumption that Pope was reasonably well-informed about science by the time he was adding the sylphs to the poem that he had first published in 1712.

This assumption seems eminently reasonable in the light of the biographical context. As emphasized by Marjorie Hope Nicolson and G. S. Rousseau in their pioneering study, *"This Long Disease, My Life": Alexander Pope and the Sciences*, Pope was predisposed by his physical deficiencies and illnesses to be interested in medicine. He had become acquainted with the physician and mathematician John Arbuthnot (as Maynard Mack infers) "in or about 1712" (191), and Arbuthnot had been made a Fellow of the Royal Society in 1704. In 1713 he had inserted into *Windsor Forest* a passage idealizing the man capable of pursuing the pleasures of retirement on the foundation of an acquaintance with "physic" along with the developing fields of botany, chemistry and astronomy:

He gathers Health from Herbs the Forest yields,  
And of their fragrant Physick spoils the Fields:  
With Chymic Art exalts the Min'ral Pow'rs,  
And draws the Aromatick Souls of Flow'rs.  
Now marks the Course of rolling Orbs on high.... (lines 241-46)

In a letter written to John Caryll (dated 14 August 1713) he had remarked on how distracted he had been by, among other things, what he refers to as his "dialogues with Whiston and the astronomers" (Croker 190). It is often assumed that Pope was alluding to the lectures given by William Whiston at Button's coffee house, but these lectures had not yet taken place (Force 20), which means either that Pope had engaged informally with Whiston or quite possibly that the "dialogues" merely took place in Pope's own mind. Pope goes on in the same letter to Caryll to invoke the plurality of worlds in order to underline the insignificance of man, "if we consider him with an eye to eternity" (Croker 191), and to compare human achievement with that of a mite "in his kingdom of a grain of dust" (191). Pope's familiarity with Boyle in particular may perhaps be assumed from the fact that Boyle was in all likelihood one of the models for Martinus Scriblerus, the satiric butt of *The Memoirs of Martinus Scriblerus* that was in the process of being composed by the Scriblerus Club (Arbuthnot, Pope, Swift, John Gay, Thomas Parnell and Robert Harley) in 1714.<sup>1</sup> Pope might have encountered his scientific works piecemeal (as they were originally published between 1660 and 1700, many in the *Philosophical Transactions of the Royal Society*) and/or in Richard Boulton's four-volume digest of Boyle's scientific works that was published in 1699. Although it is not known whether Pope owned this particular work, he certainly owned Boyle's popular book of home remedies (Mack 824n16).

Some quite explicit evidence of Pope's familiarity with the scientific world is to be found within the poem itself. "Cages for Gnats, and Chains to Yoak a Flea; / Dry'd Butterflies, and Tomes of Casuistry" (*Rape* 5.121-22) are among the lost objects that Pope relegates to the "Lunar Sphere" (5.113) before elaborating on the fate of the lock. The references are part of a cluster – the lock as a "sudden Star" (5.127) with the "*Trail of Hair*" (5.128) that identifies it with a comet (comets being, thanks to Newton and Edmond Halley, a subject of intense scientific and popular interest at the time) will be seen "thro' *Galilaeo's* Eyes" (5.138). As for the implicit evidence, much of this has been isolated by Nicolson and Rousseau, who have cited Pope's use of microscopical, insect, and prismatic figures in the description of the sylphs that concerns the present article (247, 271). More recently, Christa Knellwolf has referred to Pope's evocation of the rainbow as "scientifically inspired" (186), and Tita Chico has reiterated how "experimental philosophy offer[ed] a model for

imagining sights unseen" (254), and thus "an imaginative template for the sylphs" (256). But science is not really the subject of Knellwolf's (albeit stimulating) discussion, and Chico takes a broad view both of science and the poem. As for Nicolson and Rousseau, the net cast by these early scholars was wide, and their attention to the *Rape of the Lock* incidental. In 2012, however, Jayne Elizabeth Lewis published *Air's Appearance: Literary Atmosphere in British Fiction, 1600-1794*. This compelling monograph includes a whole chapter on the *Rape* (61-91). What Lewis isolates is the way in which the explorations of the air by Robert Boyle and others are reflected by Pope in the palpable form of breezes, mists and odoriferous "effluvia." Like Nicolson and Rousseau, Lewis tends to see Pope's interest in science as a product of his "physical fragility" (79) and in particular of his asthma, an affliction that would certainly account for his responsiveness to the conception of air as potentially cold, irritating, or even poisonous.

Lewis is alert, and rewardingly so, to Pope's evocations of air as a physical phenomenon, representations inspired in part by Boyle's proofs of air's substantial character. But Boyle does not evoke actual climatic conditions. He lends palpability to his hypothetical constructions through metaphors. As John Harwood has argued, "metaphor was central not only to [Boyle's] sense of style but also to [his understanding of] nature" (38). Indeed, although the Royal Society aspired to a discursive style free of what Thomas Sprat in his 1667 *History* had described as the "trick of *Metaphors*" (111), a style characterized by "Mathematicall plainness" (113), its members, as Gregory Lynall has observed, "inevitably relied upon metaphorical or allegorical language" (*Swift and Science* 21). The metaphorical dimension of Boyle's hypothesizing would have appealed to Pope on a linguistic (or rhetorical) level. It is partly on this ground that Boyle's influence on the *Rape* merits further consideration.

As already intimated, the discussion that follows takes as its starting point Pope's virtuosic description of the sylphs (*Rape* 2.55-68), a passage that, while it attracted some attention from Nicolson and Rousseau, falls for the most part beneath Lewis's radar. Belinda is proceeding upon her barge up the Thames on her way to Hampton Court Palace. Fearing for her future as a fancy-free and light-hearted coquette, Ariel, leader of the sylphs, summons "his Denizens of Air" (2.55) to hear his address from the mast:

He summons strait his Denizens of Air;  
The lucid Squadrons round the Sails repair:  
Soft o'er the Shrouds Aerial Whispers breathe,  
That seem'd but *Zephyrs* to the Train beneath.  
Some to the Sun their Insect-Wings unfold,  
Waft on the Breeze, or sink in Clouds of Gold.  
Transparent Forms, too fine for mortal Sight,  
Their fluid Bodies half dissolv'd in Light.  
Loose to the Wind their airy Garments flew,  
Thin glitt'ring Textures of the filmy Dew;  
Dipt in the richest Tincture of the Skies,  
Where Light disports in ever-mingling Dies,  
While ev'ry Beam new transient Colours flings,  
Colours that change whene'er they wave their Wings. (2.55-68)

Comparing the sylphs with the elemental spirits of *Le Compté de Gabalis*, Geoffrey Tillotson has rightly noted that Pope was "more scientifically interested than [the

Abbé de Montfaucon] de Villars in [their] cosmic conditions” and that “his fancy builds scrupulously on contemporary science” (although “science” is, for Tillotson, represented by Fontanelle’s *Pluralité des Mondes* [Tillotson 359-60]). Boyle, it must be acknowledged from the outset, is not the only scientist who is relevant here. As creatures “too fine for mortal sight” (line 61), the sylphs – as noted by Nicolson and Rousseau (247) – look like the typical subjects of microscopical investigation. Lewis (77) recounts how John Dennis had observed as much in his *Remarks* of 1728, where he characterized them as “[b]eings so *diminutive*, that they bear the same Proportion to the rest of the intellectual world, that Eels in Vinegar do to the rest of the material World.”<sup>2</sup> In their extreme liveliness in particular, they may have been inspired in part by the lively animacula observed under the microscope by, in particular, Anthony van Leeuwenhoek. Typical of Leeuwenhoek’s contributions to the *Transactions of the Royal Society* is his letter of 1702-03 “Concerning Green Weeds Growing in Water, and Some Animalcula Found about Them,” in which he observes tiny creatures mobilized by “2 little wheels that had a swift Gyration,” wheels that fascinated his illustrator (“who could not be satisfied with the sight, adding, O, that he could always see such a wonderful kind of motion,” [van Leeuwenhoek 1306]). Endowed with wings (mentioned twice: lines 59, 68), they reflect the preoccupation with flight exhibited by, among others, Robert Hooke and John Wilkins. Being “transparent” (line 61) and thus functioning in the sunlight not only as “insect-figures” but as “prismatic figures” (to use the terms applied by Nicolson and Rousseau [249, 271]), these wings also recall Newton’s famous experiment as described in the *Optics* by which, using prisms, he exposed the relationship between light and colour. As “Bodies” (line 62), and bodies that are specifically “lucid” (line 56), they are suggestive of Newton’s “corpuscular” theory of light. At the same time, however, their incessant movement, epitomized by the “waving” of their wings that is evoked in line 68, is suggestive of Hooke’s competing notion of light as, to quote from his 1672 lecture to the Royal Society on the subject, motion “propagated ... by pulses or waves” (Birch 10-15, 12). Their beauty is the beauty of everything as viewed, and frequently remarked upon, by scientists – the beauty of, for instance, the wings of flies as described by Hooke in his discussion “of the Structure and motion of the Wings of Flies” in the *Micrographia* (172-82), and in his subsequent account “Of a blue Fly” (which he describes as “a very beautifull creature” [182]).

Boyle is supremely relevant, however, because in his earliest treatise, “Spring of the Air” (characterized by Rose-Mary Sargent as “in large part a model for thought in Boyle’s writing” [136]) he reiterated through experiment after experiment that air was not nothing, even though we cannot see what it is or what it contains. (Whiston could scarcely have conceived of the atmosphere of a comet’s tail as he had done without Boyle’s conception of the air as richly endowed territory.) Air is the habitat of the sylphs. The significantly-named Ariel addresses them as “Denizens of Air” (*Rape* 2.55), and their “whispers” are “aerial” breaths (cf. “Aerial whispers breathe” line 57). These breaths are akin to the “breeze” that supports them (cf. 2.60). This identity of (or confusion between) the sylphs and their medium is actually consonant with Boyle’s refusal to reject out of hand the conception of air as a context *for* invisible particles (like Cartesian “ether”) even while contemplating it as a complex *of* invisible particles (Boyle, *Works* 1: 266). Either way, Boyle famously proved that air could be compressed or, particularly under the influence of heat, expanded (or “rarefied”). Expansion under the influence of heat is suggested by the action of those sylphs who “to the Sun their Insect-Wings unfold” (*Rape* 2.60). At the same time, however – as Boyle had been so concerned to show – air has weight. Such weight is exhibited by

the sylphs when, instead of "wafting" upwards (as some of them do, or perhaps as they all do some of the time), they conversely "sink in Clouds of Gold" (2.60). Boyle insistently refers to his particles as "corpuscles" or "bodies," which are comparable with the sylphs as "fluid bodies" (*Rape* 2.62). Together, these bodies form (or dwell within, depending on which of Boyle's alternative models one decides to adopt) the macrocosmic body that we apprehend as air. Indeed, as Boyle's later works hypothesize, they compose all matter, including solid (or supposedly solid) matter. The shapes of these bodies were important to Boyle. He refers to them as "texture/s" – which term is adopted by Pope (2.64). It is through their textures that individual particles are able to connect (or not) with others, in ways that lend character – or, again, "texture" – to the larger bodies that they constitute (as those do to even larger bodies, and so on). Boyle insists on the fact that bodies may change not only their places (moving in and beyond the larger bodies to which they belong or belonged), but also their textures. Boyle's "Corpuscular Doctrine," as he characterizes it in the *Physiological Essay* (on "Corpuscular Philosophy") in which he attacks what he calls "the substantial forms of the Schools" (of, that is, the Aristotelian analysis of nature), argues that bodies (in reference here to the macrocosmic bodies that we are able to see as such) differ from each other according to "the Magnitude, Figure, Motion, or Rest, and Situation of their component particles [that is, microcosmic bodies], which may be almost infinitely varied" (Boyle, *Works* 2: 91). Boyle's particles are thus "fluid" in more ways than one (cf., once again, "fluid bodies," 2.62), lending their fluidity to the air itself, and indeed to all matter. The air may be fluid in another less strict sense, according to its capacity to sustain water vapour almost as part of itself, and which – as it condenses into droplets – operates prismatically. Pope's implicit distinction between the sylphs and their dewy (and colourful, because prismatic) garments may derive from Boyle's distinction between air proper, and water as a substance that may or may not be dissolved in, or dissolve, it. It remains the case, however, that Pope conceives of the sylphs themselves as semi-soluble not in water but in light (cf. 2.62).

It should be noted that the terms "body," "texture," "fluid" (not to mention "lucid," "transparent," "dissolved," "tincture") that are re-used by Pope recur with enormous frequency throughout Boyle's scientific works. In Peter Shaw's abridgement of 1720, the word "body" appears at least once on approximately every second of its 2302 pages (and that is not counting appearances of the plural form), while "texture" appears at least once (and generally more frequently) on over five hundred pages. Even the collocations (like "lucid body") recur to a significant extent. Furthermore, these terms tend to form clusters in Boyle's writing. Thus, in his attempt to explain the "Apparition[s] of light" that appeared in his receiver upon the sudden release of the air that had been compressed within it, Boyle writes:

... it seem'd not absurd to imagine, That upon the rushing of the Air out of the Receiver into the empty'd Cylinder, the Air in the Receiver being suddenly and vehemently expanded, the *Texture* of it was as suddenly alter'd, and the parts made so to shift places (and perhaps some of them to change postures) as during their new and vehement Motion and their varied Scituation [*sic*], to disturb the wonted continuity and so the Diapheneity of the Air; which (as we have already noted) upon its ceasing to be a *transparent Body*, without the interposition of colour'd things, must easily degenerate into white. ("Spring," *Works* 1: 268)

We may observe that the terms "texture," "transparent" and "body" arise together in this brief excerpt. But it is also worth noticing their context, a scenario according to which air is conceived of as expanding, seething, moving in contrary directions, and creating the impression of whiteness, or light. Furthermore, Boyle is prompted by this same recollection to add that "little Bodies, which being rang'd after one manner, are Diaphanous and Colourless (cf. "Transparent Forms ... / ... half dissolv'd in Light," *Rape* 2.61-62) may, by being barely agitated, dispers'd, and consequently otherwise rang'd, exhibit a colour" (*Works* 1: 269). This observation offers an additional context (secondary to that of the *Opticks*) for the "transient colours" refracted by the sylph's wings (*Rape* 2.67).

If Boyle inspired Pope, it was not only through his conceptions and terminology, although these are significant enough. Attempting to conceptualize what he could not see (not only in the air, but in all matter), Boyle was dependent upon metaphors. Thus, arguing in "The History of Fluidity and Firmness" that the texture of a particle will determine its ability to cohere (or not) with others, Boyle draws on the analogy, implicit in his very term "texture," of woven objects, including baskets made of willow, wool or silk. When it comes to wool and silk, Boyle has in mind their condition as quasi-woven complexes of filaments or whatever before the further processing for which they are designed, but he goes on to invoke their macrocosmic (or, rather, super-macrocosmic) versions in the form of "Cloth, Silk-stockins [*sic*], and many other durable Garments made by illiterate Tradesmen" ("Fluidity and Firmness," *Works* 2: 182).<sup>3</sup> Boyle's invocation of garments in particular is extremely suggestive in relation to Pope's notion of the "airy Garments" (2.63) of the sylphs, airy garments elaborated as "Thin glitt'ring *Textures* of the filmy Dew" (2.64). At the same time, however, Pope's sylphs appear to operate more or less independently of each other. They "adhere together but loosely" (*Works* 2: 182) in the way that, as Boyle explains, particles can (depending on their textures). In other words, their "garments" (one might almost say the sylphs *as* garments), thrown "Loose to the wind" as they are (2.63), testify to Boyle's notion of the texture produced by interlocking particles only in so far as they might be considered as complexes of particles much smaller than the sylphs themselves. It must, of course, be doubted as to whether Pope was concerned to make his imagery, albeit imagery for which he was indebted to Boyle, consistent with its application by Boyle. Interestingly, however, Boyle does contemplate the possibility of matter being capable of what he calls "endless division" (*Works* 2: 187). Although he accepts that this is imaginable, Boyle remarks that "it would remain a great question whether or no Nature does actually so far mince and sub-divide Bodies" (*Works* 2: 187).

In his attempts to characterize bodies (or particles), Boyle frequently compares them with living creatures. In the penultimate section of his account of fluidity (in "Fluidity and Firmness"), Boyle prepares his reader for his subsequent application of his hypotheses to firmness (or supposed firmness). He does so by invoking "those bodies, which having been once endowed with life, are, though not fluid, yet either soft, or at least not perfectly hard" (*Works* 2: 148). Their (albeit limited) firmness, he suggests, is comparable with that of a swarm of bees. The swarm observed from a distance seems to be a coherent and even stable object, but the close observer is able to see that "the particular Bees that swarm have most of them their distinct and peculiar motions" (*Works* 2: 148). If the swarm consisted not of bees, but of "extreamly little flies," these motions would, he remarks, be relatively inconspicuous (*Works* 2: 148). Boyle's point is, of course, that the impression of solidity can be

created by moving particles. Here we find a precedent for Pope's conception of particles in or of air as insects.

In the above quoted instance, Boyle's comparison is explicit. Sometimes, however, his invocations of living models remain implicit. Comparing air to a fleece under the pressure of one's hand, a fleece whose individual hairs lie ready to expand when the hand is removed (this is, of course, one of his explicit comparisons), Boyle goes on to write of the expansion as a "spontaneous" movement undertaken by the fleece in order to recover "its former more loose and free condition" ("Spring," *Works* 1: 165). The fleece (and thus the particles it is invoked to illuminate) seems to be motivated – by, moreover, a longing for a style of existence evidently enjoyed by Pope's sylphs. Representing (not unsympathetically) the hypothesis of Descartes, Boyle describes particles not only as "swimming" in ether, but also – because they are in danger of being pushed about by one another – "endeavour[ing] to beat off all others from coming within the little Sphear requisite to its motion about its own Center; and (in case any, by intruding into that Sphear shall oppose its free rotation) to expel or drive it away" (*Works* 1: 166). Literally "pushy," these particles come across as aggressively selfish. Boyle's particles of air also, by contrast, exhibit what Boyle calls a "yielding" quality (that which allows it to be penetrated by, for instance, "little flies" [*Works* 1: 169]). This quality is of interest because it is shared in Pope's poem by the watery equivalent of the airy sylphs, the nymph-like creatures derived – as Ariel has explained to Belinda – from women with "soft *yielding* minds" (1.62; italics added). Boyle thus attempts to represent air in particular, but his animation extends to matter in general. At one point in "Spring of the Air," Boyle observes foreign substances that "disperse themselves and play up and down" in the air that he has collected in his receiver (*Works* 1: 214). These eventually reveal themselves to be salts. Their playfulness anticipates not only the up and down movement of Pope's sylphs, but also what might be described as their incipient lack of discipline (that we may infer from the threats issued by Ariel [2.111ff.], and that is gloriously at odds with their function as "the light *Militia* of the lower sky," [1.42]) and their sensuality. In his "Physico-Chymical Essay on Saltpetre," Boyle observes how the bubbling and hissing emanating from what we would now describe as a chemical reaction "ceas'd altogether as soon as the saline particles ... had by their conflict *tir'd* themselves into quietnesse" ("Saltpetre," *Works* 2: 99-100 italics added). He goes on to reflect on whether the effervescence that he saw might have been created by the said particles "[moving] differing ways, and so, thwarting each other in their courses, and *rudely justling* at their Occusions," with the result that some of them were "forc'd to bound or fly upwards" (*Works* 2: 104). In "Fluidity and Firmness," Boyle recalls how as a boy when, having mixed turpentine with ethyl alcohol, he had been fascinated by the way in which the tiny globes of the former could be seen "sometimes bearing up to one another, as if all or most of them were presently to unite into one body, and then suddenly falling off, and continuing to shift places with one another, after a manner pleasant and strange enough to them that never saw the Experiment: and this *dance* will continue for half an hour or an hour ..." ("Fluidity and Firmness," *Works* 2: 141). Boyle repeats his characterization of these movements as an "extravagant dance" (*Works* 2: 142).

Needless to say, Boyle's attributions of volition to matter – attributions that sometimes amount to anthropomorphizing – were never consciously intended to imply that matter really is animated. The mechanistic view of nature for which, perhaps above all, Boyle was and is famous, is abundantly clear from the character of his experiments and from his hypotheses and declarations. With reference to those

who offer as a cause of cohesion of living bodies "a Spirit, which penetrating and fastening to each other all substances corporeal, unites them into one World," Boyle remarks, sceptically and ironically: "we may consider that this substance which is called a Spirit is indeed but a subtil Body. And why therefore may not the minute parts of other Bodies, if they be conveniently shap'd for Adhesion, stick to one another, as well as stick to this Spirit?" (*Works* 2: 164). According to the hypothesis of a sticky spirit, Boyle declares (again ironically), "there must be a wonderful plenty of these little spirits in the grossest Bodies." If there are any such things as "spirituous Corpuscles," he concludes, each of them must be in reality a mere "natural Body" (*Works* 2: 164).

Why, then, did Boyle resort to metaphors – and particularly to metaphors that could be judged misleading in terms of his fundamental convictions? A deconstructionist would be inclined to read these as evidence of subconscious animism, and Boyle's insistence on the distinction between his metaphorical form and conceptual content as protesting too much. If, however, Boyle's work is taken at face value, the answer seems quite simple: language was inadequate for his purposes (as it was, as noted by Lynall [*Swift and Science* 61], for the purposes of many other scientists). In some instances the vocabulary the scientists needed to use was already metaphorically contaminated. The word "gravity," for instance (from Latin *gravis* meaning "heavy") was in English used figuratively to mean "influence" and "authority" nearly a century before it was used literally (for weight, or "ponderability").<sup>4</sup> This may go some way to explain why Boyle draws attention to his metaphors as such. Thus, of the "self-dilation" of which the air is capable, he writes "This Power ... is somewhat more conspicuous in a dry Spunge compress'd, then [*sic*] in a Fleece of Wooll. But yet *we rather chose* to imploy the latter, on this occasion, because it is not like a Spunge, an entire Body, but a number of slender and flexible Bodies, loosely complicated, as the Air itself seems to be" ("Spring," *Works* 1: 165). Describing how particles that appear to have changed may subsequently be "stript of [their] disguises," in "Possibility of the Resurrection" Boyle goes on to, as he puts it, "speak without a Metaphor" (and to translate: "be extricated from those Compositions wherein they are disguised" ["Resurrection," *Works* 7: 307]). Referring apologetically to his concerns, in an address to the dedicatee of "Spring of the Air" (his nephew Charles, the eldest son of Boyle's brother, the Earl of Cork), Boyle speaks of having "ventur'd to entertain [him] so long with such empty things as the Bubbles, which have occasion'd all this discourse" ("Spring," *Works* 1: 220). Here, he turns the tables, giving primary weight to the metaphorical meaning of the word "empty" (a word whose real meaning was of primary importance to his investigations). Boyle's projections of the independence of the phenomena at stake from the metaphors that may be used to describe them turns amusingly into insistence in the course of his attack on those who explain suction by reference to the adage that "Nature abhors a vacuum":

It will not easily ... be intelligibly made out, how hatred or aversation, which is a passion of the Soule, can either for a *Vacuum*, or any other object, be suppos'd to be in Water, or such like inanimate Body, which cannot be presum'd to know when a *Vacuum* would ensue; if they did not bestir themselves to prevent it, nor to be so generous as to act contrary to what is most conducive to their own particular preservation for the publique good of the Universe. (*Works* 1: 245; italics mine)

At the same time, interestingly, he goes on to acknowledge that his essential objection is to the scientific meaning of what he rightly describes as its "Metaphoricall Expression." Boyle's sometimes scrupulous acknowledgements of his own use of metaphor seem designed to protect him from similar attacks.

Where Boyle drew on the characteristics of living things in order to imagine pure matter, Pope draws on the characteristics of pure matter (as understood and described by Boyle) in order to imagine the sylphs. His scientific conception of them is paradoxical given his parading of their origins in occult thought in his Dedication, and in Ariel's speech to Belinda (*Rape* 1.57 ff.). The sylphs are certainly – at least according to the poem as a whole – living things. They are, moreover, not merely insects (which might perhaps be regarded as natural machines). Indeed, as Ariel explains to Belinda, they are spirits, the spirits of women who have died ("As now your own, our Beings were of old, / And once enclos'd in women's beauteous Mold; / Thence, by a soft Transition, we repair / From earthly vehicles to these of Air" [1.46-49]). This is something readers are not allowed to forget. Ariel addresses and describes the sylphs as "spirits" and "sprights" (1.69, 106; 2.102, 111, 123), as does Pope as narrator (3.135 and 4.13). Their bodies, we are led to infer, no longer exist. Taking this point, Knellwolf denominates them "agents representing the non-material" (191). Pope's elaboration of them in terms of Boyle's material particles, as "fluid bodies," is paradoxical in the extreme. How should this be interpreted? Vehicles (as "medium[s] of expression" or "metaphor[s]"<sup>5</sup>) are indispensable to allegory. The "Vehicles ... of air" that, as Ariel tells Belinda (1.49), convey the sylphs must be imagined, first, as carriages – but these airy carriages have, of course, a metaphorical value. The corpuscular (corpuscular meaning, of course, bodily) form that Pope bestows upon the sylphs allegorizes their spiritual state – which might, paradoxically, be described as one of spiritual impoverishment. Metaphorically speaking, the sylphs have always been attached to this world: "Think not," Ariel continues, "when Woman's transient Breath is fled, / That all her Vanities at once are dead: / Succeeding Vanities she still regards, / And tho' she plays no more, o'erlooks the Cards" (1.50-53). They derive, in this respect, from the classical emblem: *homo bulla est*, although some have preferred to see them as embodiments of "the imagination" (David Fairer 63) and, in their "flagrant artificiality," emblems of fiction (Lewis 85). But, while they testify to what the imagination (inspired in their case by science) can produce, what they embody (moralistically enough) is what in his letter to Arabella Fermor Pope politely characterizes as the "little unguarded Follies" of women – by which Pope means, surely, female vanity.<sup>6</sup>

The sylphs' attachment to this world is, as noted above, metaphorical; it is attachment in the sense of predilection. But Pope's conception of the sylphs as living what might be described as an "earth-bound" after-life may have been, in part, inspired by Boyle's insistence on the permanence of particles. Boyle conceived of the death of the body as a prelude to the redistribution of the particles that once constituted it. In the course of his essay on the "Possibility of the Resurrection," Boyle observes how "When a man is once really dead, once divers parts of his Body will, according to the course of Nature, resolve themselves into multitudes of steams that wander to and fro' in the air" (*Works* 8: 314). We may recall Boyle's invocation of "those bodies, which having been once endowed with life" ("Fluidity and Firmness," *Works* 2: 148), soften (that is, begin to decompose) as the indestructible particles once locked together to create firmness begin to loosen their way back into independence. Interestingly, Ariel explains death (or, at least, the deaths of women) to Belinda as their return to the elements (coquettes to the air, termagants to fire, and so

on). As Bonnie Latimer has observed, "dissolution is something of a thematic motif in *The Rape*" (699). To say that the elemental philosophy that Pope pretends to embrace had been strongly contested by Boyle would be an understatement. At the same time, however, Ariel's elemental elaboration echoes Boyle's corpuscular version of decomposition as a kind of evaporation leading to recombination.

Mortality is indeed part of the subject of Pope's poem. As Clarissa warns Belinda, "frail Beauty must decay" (5.25). In Boyle's conception of air as matter, Pope found the perfect metaphor for the superficiality of the worldly. The lightness and restlessness of the sylphs as air project the frivolity of coquettes, while their brilliance, delicacy, and colour intimate the (albeit ephemeral) beauty of the same. But, while they imitate angels (Ariel will claim that they *are* angels [2.73ff.]), they stand in diametric opposition to the genuinely "seraphic" as defined by Boyle in *Seraphic Love* (*Works* 2) – a tract designed to recommend devotion to God in preference to erotic ardour. In one of his popular *Occasional Reflections* Boyle, as quasi-preacher, anticipates Pope's metaphors by comparing "vain and flaunting *Grandeess*" (*Works* 5: 84) with painted (that is, coloured) clouds. Rendered glorious by the sunlight (which Boyle compares with royal favour) such clouds are, in reality, "Aery and Unsolid things, consisting of Vapours, and steer'd by every Wind." Boyle develops his analogy at great length, building not only on the lightness of clouds, but on their eventual evaporation or precipitation as rain. "So," Boyle continues, "the fine People I am comparing them to, in spite [*sic*] of their Exaltation, and of all the shew they make, are really but slight Persons, destitute of instrinsick and solid worth, and guided either by their own blind Lusts, and Passions, or else by Interests as fickle as those ... or as variable as the Wind" (*Works* 5: 84). Two features in particular distinguish Pope's sylphs from Boyle's clouds. First, Boyle maintains (as in his scientific writing) a clearly-defined boundary between his subject and his laborious metaphorical elaboration of it. Pope leaves it to the reader to infer this boundary for him or herself (although the ineffectuality of the sylphs, their inability to connect meaningfully with the action, may serve to imply it). Second, Boyle's metaphorical clouds owe little if anything to his scientific observations, while Pope could scarcely have conceived of his sylphs without them.

The question arises, finally, as to whether Pope's representations of the sylphs throughout is consistent with his account of them in lines 55-68 of the second canto. The answer, briefly, is that while Pope sometimes recalls their corpuscular character, he does not insist upon it. Ariel describes his particular species both as one of the four types of elemental spirit (1.59-66), while he represents them as members of the lowest angelic order (2.75-100). It is difficult to reconcile these definitions. It might be noted, however, that the resolutely unscientific Ariel is not the poet. When it comes to scientific inspiration, however, we have already seen how the description in lines 55-68 (canto 2) draws not only on Boyle, but on microscopical observations, and on the study of flight, of insects, and of light. Pope's eclecticism testifies to the important fact that his purpose was never to describe corpuscles for their own sake. Even the sylphs embodied by Boyle's corpuscles are not so much his subject as his poetic vehicles – vehicles, that is, of his satire upon female vanity. In this Pope is comparable with Swift, for whom air was, as Lynall has shown, "a satiric medium" ("Swift's Pneumatics, Fanatics, and Satiric Mechanics" 6). By the same token he is very different from Defoe who, as Helen Thompson has argued, not only absorbed but "concur[red] with" (160) Boyle's conception of matter as penetrable, and conceived of human bodies accordingly – as vulnerable in the extreme.

By contrast, the sylph that is cut in two by the baron's scissors remains unharmed because "Airy Substance soon unites again" (*Rape* 3.152), thus functioning in accordance with Boyle's conception of air. As generally noted, Pope parodies Milton's elaborate account in *Paradise Lost* (bk. 6, lines 327-53 qtd. in Berkowitz) of how Satan, pierced by the swords of the unfallen angels, remained unharmed, because spirits "[c]annot but by annihilating die; / Nor in their liquid texture mortal wound receive, no more than can the fluid air" (bk. 6, lines 347-49 qtd. in Berkowitz). This explanation itself exhibits the influence of Boyle.<sup>7</sup> Pope's account of the descent into, and return from, the Cave of Spleen of Umbriel – Ariel's earthy counterpart – (4.13-92) also has a scientific foundation, although the passage is usually glossed in the light of its literary models. As Tillotson puts it in his note to canto four (4.13ff.), "[t]he journey to the underworld is an epic commonplace" (180). This foundation is to be found not in the work of Boyle, however, but in that of Boyle's predecessor Descartes. Pope imposes on his sources in Virgil, Ovid, Chaucer and Spenser (and elsewhere) an allegory of emotional reaction as analysed by Descartes in *Les Passions de l'âme*.<sup>8</sup> The baron's assault clearly excites the passions of "Rage, Resentment and Despair" in what Descartes would have described as Belinda's soul (*Rape* 4.9). According to Descartes, however, passions, which exist in the soul as reactive "thoughts" (Article 17: 16), must be communicated to some organ of the body, such as the spleen, in order to be – as we say – "felt." Umbriel's downward journey represents this process of communication. His upward journey represents the means by which Belinda comes to express what she feels in her spleen. Descartes thought that organs literally agitated by sadness and the like exerted literal pressure on the lungs and eyes which, as a consequence, produced groans and tears. This pressure was transmitted by bodies moving through the arterial and nervous systems in the form of blood, "spirits" and "vapours" (Articles 129-132: 100-04). These apparently overlapping media might be identified with the bag that in the end releases all the expressions of emotion listed by Pope (4.81-86). Pope's narrative projects a Cartesian dissection of what, for Belinda, was the experience of the split second in which she exploded into a tearful rage. In other words, as Knellwolf rightly notes, Umbriel's journey "represents an account of the processes involved at the moment when Belinda realizes that she has become the victim of aggression" (142). Pope may have taken *Les Passions* seriously, or he may have viewed Descartes' account of the relationship between soul, brain and body as clumsy, pointless and unconvincing. He may indeed have found himself torn between a variety of reactions. It is impossible, from his application of Descartes in the *Rape*, to ascertain Pope's view of Descartes. It is clear, however, that by drawing on Descartes Pope was able to elevate and expand upon the trivial in a way entirely appropriate to the mock epic.

Significantly, in the light of Pope's descriptions of not only Umbriel but the sylphs (2.55ff.), Descartes lays the foundation for the *Passions* by characterizing his communicative "spirits" both as "a certaine aire, or exceeding subtle wind" and as "bodies exceeding small, which move very nimbly" (Article 10: 9).<sup>9</sup> He resorts to similar "bodies" to account for the brain's capacity to register objects external to it. We may see objects, he says, thanks to the "mediation of transparent bodies between [those objects] and us" (Article 13: 12). Although it is doubtful as to whether the bodies to which Descartes alludes in these particular contexts are the same as the bodies hypothesized by Boyle, it seems reasonable to conclude that the concepts are related. Pope's attribution of a Cartesian function to the "Spright" Umbriel (4.13), a gnome (or earthy sylph), thus approaches consistency with his earlier representation of the sylphs as "Transparent Forms" and "fluid Bodies" (2.61, 62). Also notable in

the Cartesian context is Pope's representation of the "Spright" Umbriel (4.13) moving "in a vapour" (4.18). Pope here evokes the convenient clouds of pantomime and opera sets, while punning on "the vapours" as depression ("Vapour," def. 3b). But, he also appears to have in mind Descartes' notion of vapour (containing, or constituted by, "spirits") as a medium of transmission. Descartes believed that tears were the product of such vapour; they were, he thought, vapour brought under pressure and condensed into water by sadness (Articles 128-31: 100-04).

As Lynall has shown, Jonathan Swift's parody of Boyle's *Reflections* testifies to his understanding of them (their doctrinal function notwithstanding) as lamentably reflective of "the deistic and mechanistic emphasis upon second causes and the negation of divine providence" (*Swift and Science* 49). Pope was, of course, Swift's fellow Scriblerian, and Martin Scriblerus (the butt of the Scriblerians) was a virtuoso. In the *Rape of the Lock*, however, Pope displays a sensibility that is quite different from Swift's. His jokes at the expense of the virtuosi (5.121-22) notwithstanding, he pays scant attention to the scientific perspective as a target. What he took from science was its extension and intensification of the physical universe. Science thus gave him a treasure trove of fresh metaphors that he drew on in his treatment of (mostly female) vanity. Indeed, although the point is incidental here, he would continue to draw on this treasure trove throughout his career.<sup>10</sup> In an admittedly restricted sense, then, the youthful Pope must be said to have delighted in science. The notion that an "antipathy" between the scientific and poetic perspectives emerged from the so-called scientific revolution requires at least a degree of qualification in the light of one of the most charming passages in one of the most significant works of the leading poet of the early eighteenth century.

## Notes

1. *Pacé* Charles Kerby-Miller, editor of the *Memoirs*. Kerby-Miller quotes Gilbert Burnet's characterization of Boyle as one who "neglected his person, despised the world, and lived abstracted from all pleasures, designs, and interests" (Burnet, *History of His Own Time* [1724-34] 1: 193 qtd. in Kerby-Miller, *Memoirs*) – as Martin evidently does (*Memoirs* 91-92). But Kerby-Miller considers Robert Hooke the more likely target (176).

2. Robert W. Williams has claimed that "there is nothing in the vocabulary ... which *requires* [the sylphs] to be minute" (26). But Williams overlooks line 61 of canto two.

3. Swift, as Lynall has shown, was to parody Boyle's notion of matter as fabric (and thus clothing) in the guise of the Taylor-Worshippers of *A Tale of a Tub* (*Swift and Science* 35-37).

4. "Gravity," def. 1.1 (for figurative applications), 2 (for physical senses).

5. See: "Vehicle," def. 2.3a ("medium of expression") which lies at modern literary-critical usage (def. 2.4d ["In a metaphor, the literal meaning..."]). The term "vehicle" (from Latin *vehere*, to carry) appears to have been applied to physical media (liquids, for example, in which substances might be dissolved for medicinal purposes ["Vehicle," def. 1a] before being used in reference to language, or to carriages [for which see: "Vehicle," def. 2.6]), although carriages are of course the vehicles that Ariel has in mind.

6. Robin Grove's characterization of the sylphs as tantalizingly seductive (68-69) – and thus perhaps as the embodiment of flirtatiousness – carries relative conviction. Knellwolf's provocative interpretation of them as "the seemingly insubstantial [that is] the threatening force which can subvert the very possibility of meaning" (192) has a paradoxical flavour that is appropriate to the sylphs as dead and alive, bodily and spiritual.

7. M. S. Berkowitz, citing God's weighing of the air as described by Gabriel in *Paradise Lost*, seems to have been the first to have noted Boyle's influence on Milton (bk. 4, lines 996-1001 qtd. in Berkowitz 15).

8. Quotations from Descartes are from the English translation of 1650.

9. Also Cartesian in origin are Belinda's "ideas" which are invoked as visible to Ariel (3.142). Arnold J. Davidson and Norbert Hornstein elaborate on the difference between the Cartesian and subsequent Lockean conception of ideas in their 1984 article. Peter Alexander interprets Locke by reference to Boyle.

10. One of many instances of Pope's later poetic application of scientific theory is the analogy from chemistry in *Epistle to a Lady* (lines 269-72) as discussed by Walls.

## Works Cited

- Alexander, Peter. *Ideas, Qualities and Corpuscles: Locke and Boyle on the External World*. Cambridge: Cambridge UP, 1985.
- Berkowitz, M. S. "'With Balanc't Air in Counterpoise': Milton & Robert Boyle." *Milton Quarterly* 13.1 (Mar. 1979): 15-17.
- Birch, Thomas. *History of the Royal Society*. Vol. 3. London, 1757.
- Boulton, Richard. *The Works of the Honourable Richard Boyle, Esq., Epitomiz'd by Richard Boulton*. London, 1699.
- Boyle, Robert. *The Works of Robert Boyle*. Ed. Michael Hunter and Edward B. Davis. 14 vols. London: Pickering & Chatto, 1999-2000.
- Chico, Tita. "Couplets and Curls: A Theory of Form." *Philological Quarterly* 86.3 (Summer 2007): 251-68.
- Croker, John Wilson, ed. *The Works of Alexander Pope*. By Alexander Pope. Vol. 6. London, 1871.
- Davidson, Arnold I., and Norbert Hornstein. "The Primary/Secondary Quality Distinction: Berkeley, Locke, and the Foundations of Corpuscularian Science." *Dialogue* 23 (1984): 281-83.
- Descartes, René. *The Passions of the Soule in Three Books*. London, 1650.
- de Villars, Abbé de Montfaucon. *The Count de Gabalis: Being a Diverting History of the Rosicrucian Doctrine of Spirits*. London, 1714.
- Elwin, Whitwell. Introduction. *The Works of Alexander Pope*. By Alexander Pope. Ed. John Wilson Croker. Vol. 6. London, 1871.
- Fairer, David. *Pope's Imagination*. Manchester: Manchester UP, 1984.
- Force, James E. *William Whiston: Honest Newtonian*. Cambridge: Cambridge UP, 1985.
- "Gravity." *The Oxford English Dictionary Online*. Oxford UP, 2016. Web. June 2016.
- Grove, Robin. "Uniting Airy Substance: *The Rape of the Lock* 1712-1736." *The Art of Alexander Pope*. Ed. Howard Erskine-Hill and Anne Smith. London: Vision Press, 1979. 52-88.
- Harwood, John T. "Science Writing and Writing Science: Boyle and Rhetorical Theory." *Robert Boyle Reconsidered*. Ed. Michael Hunter. Cambridge: Cambridge UP, 1994. 37-52.
- Hooke, Robert. *Micrographia*. London, 1665.
- Hunter, Michael, ed. *Robert Boyle Reconsidered*. Cambridge: Cambridge UP, 1994.
- Kerby-Miller, Charles, ed. *Memoirs of the Extraordinary Life, Works, and Discoveries of Martinus Scriblerus*. New York: Russell and Russell, 1950.
- Knellwolf, Christa. *A Contradiction Still: Representations of Women in the Poetry of Alexander Pope*. Manchester: Manchester UP, 1998.
- Latimer, Bonnie. "Alchemies of Satire: A History of the Sylphs in *The Rape of the Lock*." *Review of English Studies* 57.232 (Nov. 2006): 684-700.
- Leeuwenhoek, Anthony van. "Part of a Letter from Mr Antony van Leeuwenhoek, F. R. S. concerning Green Weeds Growing in Water, and Some Animalcula Found about Them." *Philosophical Transactions of the Royal Society* 23 (1702-03): 1304-311.
- Lewis, Jayne Elizabeth. *Air's Appearance: Literary Atmosphere in British Fiction, 1600-1794*. Chicago: Chicago UP, 2012.
- Lowes, John Livingston. *The Road to Xanadu: A Study in the Ways of the Imagination*. London: Constable and Company Ltd, 1927.

- Lynall, Gregory. *Swift and Science: The Satire, Politics, and Theology of Natural Knowledge, 1690-1750*. Basingstoke: Palgrave Macmillan, 2012.
- Lynall, Gregory. "Swift's Pneumatics, Fanatics, and Satiric Mechanics." *Swift Studies* 29 (2014): 6-23.
- Mack, Maynard. *Alexander Pope: A Life*. New Haven: Yale UP, 1985.
- Nicolson, Marjorie Hope. *Newton Demands the Muse: Newton's "Opticks" and the Eighteenth Century Poets*. Princeton: Princeton UP, 1946.
- Nicolson, Marjorie Hope, and G. S. Rousseau. "*This Long Disease My Life*": *Alexander Pope and the Sciences*. Princeton: Princeton UP, 1968.
- Pope, Alexander. *The Poems of Alexander Pope*. Ed. John Butt. Bungay, Suffolk: Methuen, 1965.
- Sargent, Rose-Mary. *The Diffident Naturalist: Robert Boyle and the Philosophy of Experiment*. Chicago: Chicago UP, 1995.
- Shaw, Peter. *The Philosophical Works of the Honourable Richard Boyle Esq; Abridged, Methodized [...] by Peter Shaw*. London, 1725.
- Sprat, Thomas. *The History of the Royal Society of London, for the Improving of Natural Knowledge*. London, 1667.
- Thompson, Helen. "'It Was Impossible to Know These People': Secondary Qualities and the Form of Character in *A Journal of the Plague Year*." *The Eighteenth Century* 54.2 (2013): 143-67.
- Tillotson, Geoffrey, ed. *The Rape of the Lock*. By Alexander Pope. 1712. London: Methuen, 1940.
- "Vapour." *The Oxford English Dictionary Online*. Oxford UP, 2016. Web. June 2016.
- "Vehicle." *The Oxford English Dictionary Online*. Oxford UP, 2016. Web. June 2016.
- Walls, Kathryn. "The Analogy from Chemistry in Pope's *Epistle to a Lady*, 269-92." *ANQ: A Quarterly Journal of Short Articles, Notes and Reviews* 23.3 (2010): 154-62.
- Whiston, William. *A New Theory of the Earth*. London, 1696.
- Wilkins, John. *Mathematical Magick*. London, 1648.
- Williams, Robert W. "Pope and the 'Microscopic Eye.'" *Sydney Studies* 14 (1988): 21-37.