Abstract: J. L. Mackie's famous claim that Locke 'anticipates' Kripke's Causal Theory of Reference (CTR) rests, I suggest, upon a pair of important misunderstandings. Contra Mackie, as well as the more recent accounts of Paul Guyer and Michael Ayers, Locke's Real Essences consist of those features of an entity from which all of its experienceable properties can be logically deduced; thus a substantival Real Essence consists of features of a Real Constitution plus logically necessary objective connections between them and features of some particular Nominal Essence. Furthermore, what Locke actually anticipates is the most significant contemporary challenge to the CTR: the qua-problem.

1. Locke’s ‘Anticipation’ of Kripke

Near the outset of the Third Book of An Essay Concerning Human Understanding, Locke draws a crucial distinction between what he calls a Real Essence, the "unknown Constitution of Things, whereon their discoverable Qualities depend", and a Nominal Essence, "that abstract Idea, which the General, or Sortal Name stands for", that is, the set of necessary and sufficient conditions for the application of a term (III iii 15). On this account, the Real Essence of gold is whatever features of its constitution are in fact responsible for its properties, while its Nominal Essence is the set of ideas of observable qualities, such as 'heavy', 'yellow', 'malleable',...
and so on, which lead us to recognize a particular object as a piece of gold. Thus, the Real Essences of substances are in the world, while their Nominal Essences are in the mind of some observer or language-user.

In contrast to the case of simple ideas and modes, for which Real and Nominal Essences are identical, Locke wishes to defend the controversial thesis that the names of substances either do or should refer to objects only by means of their Nominal Essences, and not by appeal to Real Essences at all. As his definitions suggest, Locke's claim is that only Nominal Essences are available to us in grounding reference, although we mistakenly suppose that we use our terms to pick out substances by their Real Essences:

Fifthly, Another Abuse of Words ... We may observe, that in the general names of Substances, whereof the nominal Essences are only known to us, when we put them into Propositions, and affirm or deny any thing about them, we do most commonly tacitly suppose, or intend, that they should stand for the real Essence of a certain sort of Substance. (III x 17)

Locke quickly makes clear why this is an Abuse of Words:

the Word Man or Gold, signify nothing truly but a complex Idea of Properties, united together in one sort of Substances: Yet there is scarce any Body in the use of these Words, but often supposes each of those names to stand for a thing having the real Essence, on which those Properties depend. Which is so far from diminishing the Imperfection of our Words, that by a plain Abuse, it adds to it, when we would make them stand for something, which not being in our complex Idea, the name we use, can no ways be the sign of. (III x 18)

Locke here seems to reason that because we never come to know them, substantival Real Essences cannot figure in the ideas we have of substances, or in the signification of the terms we use for them.

Locke's argumentation often suggests that it is a simple empirical fact about human beings that the references of our substance terms are not founded upon the knowledge of substantival Real Essences. He claims, for instance, that two samples which we name by the same substance term can vary widely in their properties, and that this would be impossible if we were picking out objects by their Real Essences (III vi 8). Elsewhere, he claims that even if Real Essences were discoverable, the use of language would considerably predate such discovery and is carried on perfectly well by ignorant and illiterate people who have no knowledge of Real Essences. He concludes that the use of language cannot depend upon having any such knowledge (III vi 25). Such arguments offer the mistaken impression that contingent epistemic limitations are Locke's sole reason for thinking that Real Essences are not what ground the references of our kind terms.
Indeed, when J. L. Mackie famously argues that Locke ‘anticipates’ Saul Kripke’s ‘Causal Theory of Reference’, he takes Locke’s arguments against reference via Real Essences to be exclusively epistemic. He describes Locke as correctly noting the same feature of our linguistic practice that Kripke did in formulating the CTR, namely that we intend to annex the names of substances to their internal constitutions. And he argues that Locke mistakenly rejects this insight, leading him to dramatically misguided prescriptions for our use of language, solely on the basis of an unwarranted pessimism regarding our ability to discover substantival Real Essences.

There is a sense, of course, in which it is misleading to characterize this as an ‘anticipation’ of the CTR: as Nicholas Jolley points out (1984, p. 151), Locke raises the Kripkean view only to reject it wholesale, and it is Leibniz who criticizes Locke on largely Kripkean grounds. Nevertheless, Mackie is pushed towards crediting Locke with the anticipation of the CTR because he is impressed with the way that Locke sets up the problem: Mackie seems to feel that recognizing our intention to annex words to Real Essences constitutes a giant leap in the direction of the truth about reference (i.e., the CTR), and that Locke simply stumbles at the end, in claiming that this intention cannot be fulfilled. It is thus in tribute to what Mackie sees as a painfully near miss that he ascribes the anticipation of Kripke’s view to Locke.

In section 2 I will argue that this attribution involves a fundamental misunderstanding of Locke’s account of Real Essences. Against Mackie, as well as the more recent accounts of Paul Guyer and Michael Ayers, I will argue that, for Locke, a Real Essence in general consists of those features of an entity from which all of its observable or experienceable properties can be logically deduced, and that a substance’s Real Essence, therefore, consists of features of its Real Constitution plus logically necessary objective connections between them and the features of a particular Nominal Essence. Thus, Locke’s pessimism regarding our ability to discover Real Essences, as he conceives them, is far from unwarranted.

In section 3 I will argue that even if we adopt the standard account of Lockean Real Essences that I am challenging, what Locke anticipates is in fact the most significant contemporary challenge to the CTR: the qua-problem. He explicitly argues that our ideas of natural kinds establish the referential significance of differences in internal constitution, and furthermore, that we cannot annex a natural kind term to the unknown Real Essence of a sample, for the efficient functioning of human language demands that any particular natural object instantiate a variety of different natural kinds, with distinct corresponding Real Essences.
2. Mackie, Locke and Real Real Essences

According to Mackie, Locke's misstep resulted from an undue pessimism regarding our ability to know Real Essences. He claims that the general concept of stuff whose identity is given by that [internal] constitution is justified by its usefulness as a framework for detailed explanations. Admittedly, such justification in detail has come mainly since Locke's time, by the progress of physics along lines about which Locke, as we shall see, was pessimistic. (pp. 97–98)

Mackie seems to think, then, that if Locke had not been so pessimistic about the prospects for our knowledge, he might well have recognized the justification of the notion of 'stuff whose identity is given by its internal constitution' and then perhaps embraced the Causal Theory of Reference wholesale. But the claim that Locke's pessimism has proved to be misguided misunderstands what Lockean Real Essences are supposed to be.

Mackie unequivocally equates Locke's Real Essences with molecular and atomic structures, and claims that Locke was simply wrong about our capacity to discover them:

Since we can equate Locke's real essences with what we should now call the molecular and atomic structure of things, we may say that many real essences that were unknown in Locke's day are now pretty thoroughly known by chemists and physicists. (p. 78)

Later, Mackie repeats this conclusion in conjunction with a somewhat harsh judgement regarding Locke's failure to keep up with the science of his time:

Looking back after nearly three centuries of scientific advance, we can easily see where Locke was mistaken about these issues. Chemists and physicists have achieved the sort of detailed knowledge of microstructure of which Locke despaired, and they have achieved it not, in the main, by devising more powerful microscopes but by framing and testing detailed hypotheses, a method whose power and value Locke did not realize. In fact, his philosophy of science in this respect failed to keep up with the science of his own time, let alone anticipate the future advances of physics: some of the contemporaries whom he knew and respected were beginning to use the hypothetico-deductive method ... (p. 101)

Thus, Mackie thinks it obvious that Lockean Real Essences just are atomic constitutions, and since we have knowledge of these, Locke's pessimism has turned out to be misguided. While Mackie is the most ardent proponent of this view, the unembarrassed equation or analogy of Lockean Real Essences with modern molecular or atomic structure, or with the genetic coding of organisms, is common currency in the writings of quite a number of Locke scholars, including Woolhouse (1983, pp. 103, 113–14, 114 n. 4), Yolton (1985, p. 106), and Alexander (1985, ch. 13

© 1998 University of Southern California and Blackwell Publishers Ltd.
(esp. pp. 277–79) and p. 296). Ironically, even Margaret Wilson (1979), famously arguing that the role of Corpuscularian science in Locke’s philosophy may have been emphasized to the unwarranted exclusion of all else, both equates Real Essences with the arrangements of Boylean corpuscles (p. 150) and claims “Now we know Locke was wrong in thinking that the conceptual and empirical limitations of Boyleanism were in principle unsurmountable” (p. 149). In each of the cited instances, the author seems to feel that the equation of Locke’s Real Essences with modern physical, chemical or genetic constitutions is obvious and uncontroversial, or at least that it requires no argument. It is perhaps unsurprising, then, that this view of Lockean Real Essences is taken for granted in much contemporary philosophical and scientific debate. When John Dupré attacks essentialism, for instance, he identifies Locke as the thinker who made the distinction between Real and Nominal Essences famous, and claims that

Subsequent scientific history has convinced some, perhaps most, philosophers that Locke’s skepticism was premature. Chemistry and physics have revealed a good deal about the microstructure of things... (1993, p. 22)

I suggest that Mackie and the many philosophers who share this view of Real Essences have misconstrued Locke’s account. Note that Locke’s explicit definition of Real Essence is the “unknown Constitution of Things, wheron their discoverable Qualities depend” (III iii 15). This formulation combines two quite different ideas which Locke had far less reason to discriminate clearly than do we. One important constituent of Real Essence here is indeed molecular or atomic structure of a Corpuscularian sort. But to equate Lockean Real Essences with such molecular structures is to ignore an essential second feature: Locke has a very strong version of the ‘dependence’ of Qualities on Real Essences in mind. Thus he claims,

Had we ... the specifick Ideas of [substances’] real Essences in our own Minds ... to know the Properties of Gold, it would be no more necessary, that Gold should exist, and that we should make Experiments upon it, than it is necessary for the knowing the Properties of a Triangle, that a Triangle should exist in any Matter, the Idea in our Minds would serve for the one, as well as the other. (IV vi 11; see also IV iii 25)

This passage suggests that part of what Locke means by ‘Real Essence’ is that a knowledge of it should enable us to understand and deduce its possessor’s further properties without trial or experiment. Thus ‘discoverable Qualities’ were supposed to ‘depend’ upon Real Essences in the strongest possible sense: the former were supposed to be logical consequences of the latter, and deducible from a knowledge of them in advance of experience.
in just the way that the properties of geometrical figures are logically deducible from their definitions.

Mackie views this strand in Locke's thinking as a simple error regarding what knowing Real Essences will get us. Because the fundamental laws of physical interaction are synthetic and empirical, Mackie claims, Locke was right to consider them 'as a priori' as the laws of interpreted geometry and applied mechanics, but wrong to think that the latter were a priori at all: it was simply a mistake to think that knowledge of Real Essences could enable us to deduce the properties of objects without trial. I would suggest instead that this strong sense of 'dependence' of macroscopic properties upon it is part of what constitutes a substantival Real Essence for Locke: that is, that knowing the Real Essence of a thing must, by definition, enable us to deduce its Nominally Essential properties in advance of experience. In this case, the Real Essences of substances would have to include not only Corpuscularian constitutions, but also logically necessary connections between those constitutions and their observable or experienceable features, and the 'hypothetico-deductive method' would allow us to achieve only a partial knowledge of Lockean Real Essences.

We find compelling textual grounds for accepting this construal of substantival Real Essences over Mackie's simple equation of them with internal constitutions in Locke's claim that the Real Essences of simple ideas (e.g., whiteness) and modes (e.g., triangle (a simple mode), hypocrisy (a mixed mode)) are identical with their Nominal Essences (III iii 18; III v 14). R. S. Woolhouse, who shares Mackie's view of substantival Real Essences as Corpuscularian constitutions (1971, §18), claims that the "whole upshot of Locke's theoretical account of mode-ideas is (whether he recognizes it or not) that the notion of a real essence ... does not apply to them" (p. 126), and that equating their Nominal Essences with Real Essences therefore leads Locke ultimately into quite serious incoherence (§23 and §26). Of course, if Locke's Real Essences were bare Corpuscularian constitutions, Woolhouse would be right, for modes have none.5

But Woolhouse maintains that there is no construal of Lockean Real Essence, Corpuscularian or otherwise, which applies to modes. This is because the problem with modes, on the view of them Woolhouse attributes to Locke, is "not so much that their properties have no 'tie' or 'foundation' in the specifically corpuscular, mechanistic, way relevant to the properties of substances, as that they have no 'tie' and 'foundation' at all - in this or any analogous way" (p. 127). But Locke explicitly makes the case for a sort of unity that he claims is possessed by modes nonetheless:

it seems reasonable to enquire, whence [a mixed mode] has its Unity; and how such a precise multitude comes to make but one Idea, since that Combination does not always exist together in Nature. To which I answer it is plain, it has its Unity from an Act of the Mind combining those several simple Ideas together, and considering them as one complex one, consisting of those parts ... 4 (II xxii 4)
For Locke it is ‘plain’ that the unitary character of a mixed mode is produced by an Act of the Mind. This is, of course, how we can know the Real Essences of modes: the ‘tie’ and ‘foundation’ of their properties is just that which we (mentally) provide. This unity is sufficient, in Locke’s view, for the possession of a Real Essence; thus, we must ascribe to him a notion of Real Essence broad enough to include a set of ideas of properties unified only by a mental act.

Indeed, Woolhouse’s claim that any construal of Real Essences should deny them to modes shows how his Corpuscularian-minded approach gets things somewhat backwards: Locke’s claims about the Real Essences of modes and simple ideas demonstrate the need for a unified account of Real Essence in general which can encompass something besides mere Corpuscularian constitutions (which modes and simple ideas do not have). In fact, Locke’s attribution of Real Essences to modes and simple ideas suggests that it is a matter of contingent fact and not of definition that Corpuscularian constitutions are even elements in substantival Real Essences at all. Let us see why.

For Locke to allow that modes have Real Essences, and to equate their Real with their Nominal Essences, his general conception of a Real Essence must amount to something like ‘those features of a thing from which its Nominally Essential properties can be deduced’. Modes and simple ideas are themselves already mental entities: notwithstanding the fact that they are “Dependences on, or Affections of Substances” (II xii 4), Locke claims (perhaps mistakenly) that even mixed modes like gratitude, beauty and murder are “not referred to the real Existence of Things” (III v 14), that they have only the free combination of ideas in the mind as archetype (IV iv 5), and that they have “their Original, and constant Existence, more in the Thoughts of Men, than in the reality of things” (II xxii 2). Thus, features of a mode’s (or simple idea’s) Nominal Essence are features of the mode (or simple idea) itself, and, as Locke claims, its Real Essence, the features of the mode or simple idea from which its Nominally Essential features follow logically (if trivially!), will just be that very Nominal Essence. But substances are not mental entities; therefore, features of the Nominal Essence of a substance are not features of the substance itself. Thus, in the case of substances, the general definition of Real Essence is fulfilled by the conjunction of two distinct components, each of which Locke takes to be beyond our knowledge: Corpuscularian constitutions and the logically necessary connections between such structures and the mental experiences we have when exposed to them – the experiences which are collected up into the Nominal Essence of the substance. Only a knowledge of both of these elements would enable us to deduce the Nominally Essential features of substances in advance of experience or experiment; thus, both must be included as components of substantival Real Essences.

© 1998 University of Southern California and Blackwell Publishers Ltd.
What I offer, then, is a unified, general account of Locke's claims about Real Essences. It seems reasonable to think that, for Locke, the Real Essence of any sort of thing should consist of those among its features a knowledge of which would enable us to discover, a priori, all of the ways in which things of that sort manifest themselves in our experiences; he does claim, after all, that Essence "may be taken for the very being of any thing, whereby it is what it is" (III iii 15). Such a characterization comprehends his willingness to attribute Real Essences to modes and simple ideas, as well as his explicit claim that the Real and Nominal Essences of such entities are identical. And on this view, while the Real Essence of a substance consists of both a particular Real Constitution and the necessary connections between that Constitution and some particular set of Nominally Essential properties, it is a completely contingent fact that it is these particular characteristics which satisfy Locke's general notion of Real Essence when it is applied to substances, rather than a matter of definition.

Several recent commentators have avoided Mackie's simple equation of substantival Real Essences with the internal constitutions of substances, but have offered accounts of Lockean Real Essences which stop short of including necessary connections between the Real Constitutions and observable features of substances. Paul Guyer, for instance, suggests that for Locke,

a real essence is that aspect of a particular's real constitution which explains its possession of those among its sensible qualities that have been singled out as comprising the nominal essence of the species in which it is being classified by the general term by which it is denominated. (1994, p. 133)

Michael Ayers offers a similar proposal in his (1991):

What explains the properties of the species so defined ... is corpuscularian structure ... Those aspects of the structure of individual members of a species which they have in common and in virtue of which they all possess the defining properties of the species, comprise what Locke called the 'real essence' of the species. (vol. II, pp. 67–68)

For Guyer and Ayers, then, a substantival Real Essence is a subset of an object's Real Constitution: that set of features of the Real Constitution which explains the object's possession of the features of some particular Nominal Essence. And on this view, Locke's pessimism again turns out to have been misguided, for we are indeed able to explain many experiencable properties of objects by appeal to features of their internal constitutions (see also Guyer, p. 134).

Of course, Locke's claim that the Real Essences of modes and simple ideas are identical to their Nominal Essences makes it difficult to see how
the Guyer/Ayers proposal for substantival Real Essences can countenance a defensible account of Real Essences in general: even if we ignore the demand that a Real Essence be selected from among features of a Corpuscularian structure (which modes and simple ideas do not possess), it is surely something of a strain to say that the Nominally Essential features of a simple idea or mode ‘explain’ its possession of those very Nominally Essential features (i.e., themselves) or that it is ‘in virtue of’ possessing its Nominally Essential features that a simple idea or mode possesses its Nominally Essential features. Furthermore, even if the Guyer/Ayers account can be shown to be consistent with some defensible general account of Lockean Real Essences, further textual and historical considerations regarding Locke’s specific claims about substantival Real Essences favor an account of them that includes the necessary connections between features of Real Constitutions and Nominally Essential properties.

The most important such consideration is Locke’s vaunted pessimism regarding our ability to discover the Real Essences of substances. Locke was intimately acquainted with Corpuscularian science, and, as Mackie himself points out above, had considerable respect for many of his contemporaries who were beginning to fruitfully employ the hypothetico-deductive method. Thus, it does not seem reasonable to suppose that Locke was completely and unreservedly pessimistic regarding our ability to discover the bare Corpuscularian constitutions of objects. And indeed, when Locke discusses the state of human knowledge, he evidences a consistent tendency to be considerably more pessimistic regarding the prospects for discovering necessary connections between such constitutions and observable properties than the possibility of discovering the constitutions themselves:

Besides this ignorance of the primary Qualities of the insensible Parts of Bodies, on which depend all their secondary Qualities, there is yet another and more incurable part of Ignorance, which sets us more remote from a certain Knowledge of the Co-existence or Inco-existence (if I may so say) of different Ideas in the same Subject; and that is, that there is no discoverable connection between any secondary Quality, and those primary Qualities that it depends on. (IV iii 12, first italics added)

While Locke indeed claims that we are ignorant of Corpuscularian structures, his thoroughgoing and relentless pessimism is directed against a ‘more incurable part of Ignorance’. This is our general inability to discover any necessary connection between primary and secondary qualities, of which our inability to discover such connections between the primary qualities of the insensible parts of bodies and the observable secondary qualities of those bodies is a salient consequence. It seems that we can make sense of both Locke’s presumable familiarity with the advances of the hypothetico-deductive method in discovering Corpuscularian structures and his

© 1998 University of Southern California and Blackwell Publishers Ltd.
extreme pessimism regarding our ability to know Real Essences by pointing out that this pessimism was directed most strongly against our ability to learn of necessary connections between such structures and observable properties, the crucial second component of substantival Real Essences on the account of them I have offered.

It is important to realize that Locke's insistence that the laws relating primary and secondary qualities be logically necessary reflects his acceptance of a fundamentally Rationalist view of the relations among the elements of the natural world, a feature of Locke's thought noted by Woolhouse (1971, §§4 and 5), Yolton (1970, pp. 79–85), Ayers (Vol II, ch. 12) and Beauchamp and Rosenberg (1981, ch. 2, §III.1; ch. 3, §III), among others. On this view, the properties of any natural object depend logically upon it, in precisely the way that the mathematical properties of a triangle depend logically upon its definition, and the two relations carry exactly the same sort of logical necessity. It is for this reason that true knowledge of a cause, for the Rationalist, permits the purely logical deduction of its effects. This is the sort of knowledge of the natural world which God is supposed to possess: not simply the exhaustive brute facts regarding the existence of objects, events and properties, but a knowledge of the objectively existing logical necessities which entail that objects, events and properties occur as and when they do. It is this Rationalist view of the natural world, when combined with Locke's Empiricist awareness that empirical science never delivers such knowledge of logical necessities, which results in Locke's infamous pessimism regarding the prospects for natural science (IV xii 10): his pessimism regarding our ability to learn the Real Essences of substances derives most fundamentally from this general inability to learn of logically necessary connections between features of the natural world.

Even the claim that we have discovered features of substance's Real Constitutions which 'explain' their possession of Nominally Essential properties obscures this Rationalist dimension of Locke's thought: for Locke, a Real Constitution could explain nothing without a knowledge of the logically necessary connections between natural phenomena. Thus, no feature(s) of any Real Constitution would suffice to explain the possession of Nominally Essential properties, and we have not managed to discover features which explain in Locke's sense (proving his pessimism to be unwarranted) so much as contemporary thinkers have largely given up on the idea that there are any features or explanations of this kind to be discovered.

We should also notice that when he bemoans the 'less incurable' part of our ignorance (ignorance of Corpuscularian constitutions), Locke rarely, if ever, uses the term 'Real Essence'. He typically uses 'real Constitutions', 'minute Constitutions', 'the Size, Figure, Texture, and Motion of Parts' (or some subset of these properties), or 'the primary Qualities of insensible
Parts’. In Book IV, the term ‘Real Essence’ is typically reserved for passages like the following:

[we could], from a Discovery of their real Essences, grasp at once whole Sheaves; and in bundles, comprehend the Nature and Properties of whole Species together. (IV xii 12)

Admittedly, Locke’s choice of language is notoriously slippery and at times appears inconsistent. Nonetheless, it at least lends a blush of plausibility to my conception of substantival Real Essences that Locke is generally unwilling to apply this term to bare Corpuscularian constitutions, and when he does employ it, it is in a manner consistent with conceiving Real Essences in the way I have proposed. After all, if knowledge of Real Essences includes the knowledge of necessary connections between Corpuscularian constitutions and observable properties, we would expect a knowledge of them alone to enable us to ‘comprehend the Nature and Properties of whole Species together’.

There are also specific passages in which Locke suggests that the Real Essences of substances have the two distinct constituents I have claimed:

Had we such Ideas of Substances, as to know what real Constitutions produce those sensible Qualities we find in them, and how those Qualities flowed from thence, we could, by the specific Ideas of their real Essences in our Minds, more certainly find out their Properties, and discover what Qualities they had, or had not, than we can now by our Senses. (IV vi 11, italics added)

Notice that Locke does use the term ‘real Essences’ here, but it seems to encompass ‘real Constitutions’ and ‘how those Qualities flowed from thence’ collectively, suggesting that both Corpuscularian constitutions and the necessary connections between them and Qualities are constituents of this notion. Only knowing both of these elements of Real Essences in the robust sense I have proposed would, as Locke insists, enable us to deduce the Qualities of their possessors.

I would suggest that we have missed this general characterization of Lockean Real Essences because of the very natural tendency to read our own philosophical concerns into philosophers of the past. After all, we have indeed achieved an impressive degree of knowledge regarding molecular and genetic structure, while contemporary philosophical and scientific orthodoxy has come to consider the very project of searching for logically necessary connections between such structures and observable properties to be nonsensical. Thus, a notion of Real Essence as Corpuscularian molecular or genetic structure is surely the one with which we are most concerned, and the account of substantival Real Essences presented by Locke is near enough to be mistaken for this: Corpuscularian constitutions do turn out to be a constituent in Lockean substantival Real
Essences, even if this is not true by definition and even if they are not the whole story. We have, then, mistakenly foisted upon Locke's metaphysics a notion of Real Essence which captures only what we ourselves have been able to discover through advances in the natural sciences and with which we are therefore most concerned. But as we have seen, to replace Locke's own robust notion of a Real Essence with a more restricted one of greater contemporary interest does violence to his thinking and thoroughly obscures the philosophical problems with which he was concerned.

On the account I have offered of them, Locke's pessimism regarding our ability to discover the Real Essences of substances appears reasonable and defensible. But this realization leaves us with a further question of pressing philosophical interest: if we are able to discover only bare Corpuscularian constitutions, and not Locke's Real Essences, are such constitutions up to the job Mackie has proposed for them, that of founding a Causal Theory of Reference? What I will now argue is that, even if we grant Mackie his flawed sense of 'Real Essence,' Locke does not anticipate the CTR, but instead offers an in principle argument against that position which is compelling even by contemporary lights. That is, far from anticipating the CTR, Locke refuted that position before its birth.16

3. Anticipation or Confutation? Locke and the CTR

Mackie introduces Locke's 'anticipation' of Kripke by focusing on a mistake he thinks Locke makes regarding the difference between the names of substances and those of mixed modes. At III vi 44–51, Locke tells us a fable about Adam's naming of a substance ('zahab') and two mixed modes ('kinneah', 'niouph') in order to point out a difference in the way we use these two sorts of terms. In the fable, Adam mistakenly believes that Lamech is troubled by suspicion that his wife Adah is committing adultery. In discussing his suspicions with Eve, Adam invents the words 'kinneah' and 'niouph' to express the complex ideas jealousy and adultery, respectively. In time, Adam discovers that Lamech's trouble has nothing to do with jealousy or adultery; nonetheless, Locke points out, the Nominal Essences of 'kinneah' and 'niouph' continue to be those complex ideas to which Adam first attached them.

It is quite otherwise with substances, Locke tells us. He supposes that Adam invents the word 'zahab' to describe some new substance (gold) his children have brought him. Here, Locke points out, Adam is not free to unite any set of ideas he chooses; the Nominal Essence he defines for 'zahab' must conform to properties actually possessed by gold. In contrast to the cases of 'kinneah' and 'niouph', Adam must take care here that the ideas he includes in the Nominal Essence of 'zahab' correspond to
actual properties of the thing he has encountered, or the Nominal Essence he proposes will be wrong.

Locke claims that the important difference between these cases is that for ‘zahab’, Adam has a standard imposed by nature, while he is free to combine his ideas as he likes in naming the mixed modes. Mackie views this as a mistake, claiming that there is a standard imposed by nature in both cases, and that the difference is instead that, as with all substance-terms,

He intended zahab to stand for that stuff, whatever properties and constitution it may turn out to have; but he did not intend kinneah to stand for the sort of trouble, whatever it may turn out to be, from which Lamech is suffering, nor niouph for whatever Adam has been up to lately. (p. 93)

Thus Mackie claims that the real difference is in how we intend our words to apply. He embraces the basic form of the CTR account of the naming of natural kinds: we can say that term X will apply to this thing here and whatever is like this thing. And as we have seen, he argues that Locke is prevented from embracing this account only by a misguided pessimism regarding our ability to discover the Real Essences of substances.

But this is clearly a mistake on Mackie’s part, for when Locke moves on to consider “how and by whom these Essences come to be made” (III vi 26), he offers more principled grounds for rejecting the CTR than mere contingent, if incurable, ignorance. In the following passage, Locke explicitly argues that even if we did know the Real Constitutions of substances, this knowledge would not fix the references of natural kind terms, for it would not settle the issue of which similarities and differences of Real Constitution were referentially significant. Locke asks,

For what is sufficient in the inward Contrivance, to make a new Species? There are some Watches, that are made with four Wheels, others with five: Is this a specifick difference to the Workman? Some have Strings and Physies, and others none; some have the Balance loose, and others regulated by a spiral Spring, and others by Hogs Bristles: Are any, or all of these enough to make a specifick difference to the Workman, that knows each of these, and several other different contrivances, in the internal Constitutions of Watches? ’Tis certain, each of these hath a real difference from the rest: But whether it be an essential, a specifick difference or no, relates only to the complex Idea, to which the name Watch is given: as long as they all agree in the Idea which that name stands for, and that name does not as a generical name comprehend different Species under it, they are not essentially nor specifically different. But if any one will make minuter Divisions from Differences, that he knows in the internal frame of Watches; and to such precise complex Ideas, give names, that shall prevail, they will then be new Species. (III vi 39)\[^{17}\]

Here Locke argues that even a full knowledge of the internal constitutions of watches would not alone allow a Watchmaker to range them into sorts.

© 1998 University of Southern California and Blackwell Publishers Ltd.
This is because the watches all differ in internal constitution, and knowing the Real Constitution of each will not tell the Watchmaker which are the important differences between them, the differences which determine one watch to be of a different sort than another. Particular differences of Real Constitution can be established as referentially consequential only by appeal to the ‘complex idea’ we annex to a particular name, even when that idea includes features of the Real Constitution itself. As Guyer summarizes the point of this passage, we may discover the atomic structure of matter,

But what forces us to classify two lumps in the real constitutions of which there are the same numbers of protons but different numbers of neutrons as two different isotopes of the same substance rather than two different substances? Nothing but our own decision to use the number of protons rather than neutrons as the basis of our system of classification of the kinds of matter – a choice not simply forced upon us by objective similarities in nature. (1994, p. 134, see also Ayers, Vol. II, pp. 70, 81)

Thus, Locke’s case against the CTR is not exclusively epistemic, for he argues that even in the context of a full knowledge of the Real Constitutions of objects and substances, the significant differences between objects, and thus the references of our natural kind terms, can only be established by appeal to the ‘complex idea’ or Nominal Essence to which a particular term is annexed.

But this is not the extent of Locke’s principled argument against the CTR, for he recognizes that the Causal Theorist’s proposal is not that we survey the internal constitutions of objects to determine their reference-fixing structure, but that instead we annex the reference of a particular kind term to all those objects sharing the unknown Real Essence of a particular sample, whatever it turns out to be. That is, the Causal Theorist’s Adam insists that the term ‘gold’ will refer to this particular object here and all others which share the Real Essence actually possessed by that object, whatever that Real Essence turns out to be.

But Locke also points out a fatal flaw in this fully contemporary formulation of the central CTR strategy. Notice that in the discussion of watches, Locke rejects any absolute division of names into specific and generic varieties, pointing out that all that is required to change the term ‘watch’ from a specific to a generic name is for us to “make minuter Divisions from Differences”: that is, to use some other names (with associated Nominal Essences) to further subdivide the category of watches on the basis of some further actual difference between them. To do so, Locke points out, is to make ‘watch’ a ‘generical name’, but, importantly, a name with a corresponding Real Essence and one which remains applicable to all of the more specific sorts of watches falling under it (four-wheeled watches, hogs’ bristles watches, etc.).
This point is developed in Locke's explicit discussion of genera and species. There he argues that

The same Convenience that made Men express several parcels of yellow Matter coming from Guinny and Peru, under one name, sets them also upon making of one name, that may comprehend both Gold, and Silver, and some other Bodies of different sorts. This is done by leaving out those Qualities, which are peculiar to each sort; and retaining a complex Idea, made up of those, that are common to them all ... comprehended under the name Metal. Whereby it is plain, that Men follow not exactly the Patterns set them by Nature, when they make their general Ideas of Substances; since there is no Body to be found, which has barely Malleableness and Fusibility in it, without other Qualities as inseparable as those. But Men, in making their general Ideas, seeking more the convenience of Language and quick dispatch, by short and comprehensive signs, than the true and precise Nature of Things, as they exist, have, in the framing of their abstract Ideas, chiefly pursued that end, which was, to be furnished with store of general, and variously comprehensive Names. So that in this whole business of Genera and Species, the Genus, or more comprehensive, is but a partial conception of what is found in the Species, and the Species, but a partial Idea of what is to be found in each individual. (III vi 32)

Locke here sounds a favorite anti-Aristotelian theme: that the classification of natural objects is the work of humankind and fashioned to its own purposes ('the workmanship of the understanding'), rather than a mirror or imposition of the natural order. But here this claim has an important twist: Locke argues that it is inconsistent with the general function or purpose of language for each object to fall under only a single natural classification, despite the fact that any particular natural object always exhibits all of its actual properties, and never merely those represented by some general term. That is, it is the 'convenience of Language and quick dispatch' which demands that we have terms referring to a particular object in conjunction with many different classes of others, on the basis of different sets of properties instantiated by that object. That is why the 'same Convenience' which leads us to generate a single term encompassing two separate samples of gold leads us to generate a distinct term encompassing the various samples of metal as well. Thus, Locke rejects any principled distinction between the generation or application of generic and specific terms: both kinds of names for substances are generated by abstracting away from a more complete specification of the properties exhibited by individuals, and both reflect our common need for terms which easily and efficiently group an individual with various and diverse sets of others, on the basis of distinct sets of shared properties, for the purpose of collective reference.

This basic function of linguistic classification, however, is inconsistent with the CTR's account of reference for natural kind terms. We cannot annex Adam's term 'zahab' to the unknown Real Essence exhibited by this particular piece of gold, because the 'convenience of Language and
quick dispatch' ensures that this particular sample will have many different Real Essences: one for each general term, specific or generic, under whose compass it falls. As Locke continues,

If therefore any one will think, that a Man, and a Horse, and an Animal, and a Plant, etc. are distinguished by real Essences made by Nature, he must think Nature to be very liberal of these real Essences, making one for Body, another for an Animal, and another for a Horse; and all these Essences liberally bestowed upon Bucephalus. But if we would rightly consider what is done, in all these Genera and Species, or Sorts, we should find, that there is no new Thing made, but only more or less comprehensive signs whereby we may be enabled to express, in a few syllables, great numbers of particular Things, as they agree in more or less general conceptions, which we have framed to that purpose. (III vi 32)

Thus, Locke argues, it cannot be the presence of some particular unknown Real Essence which qualifies an object for the reference of a term like ‘horse’ or ‘man’. It is humankind which makes and uses languages, and to be useful to us, the general terms of a language must be able to pick out the very same object in many different ways: by means of various general terms appealing to distinct sets of properties exhibited by that object. But this fact carries a devastating consequence for the CTR, for it implies that a sample of a substance simply has no unitary unknown Real Essence to which the reference of a natural kind term can be annexed. Instead, we can only fix the reference of a particular natural kind term by explicit appeal to a particular set of properties exhibited by a sample: one of the various and diverse sets of properties by means of which we intend to group that object with others for the purposes of collective reference.

It is worth noting that Locke’s argument here ‘anticipates’ what is by far the most compelling contemporary objection to the CTR: the qua-problem. In a popular textbook on the philosophy of language, for example, Michael Devitt and Kim Sterelny introduce and endorse the basic reference-grounding strategy of the CTR for natural kind terms, but then go on to point out that this strategy raises a crucial and pressing problem:

The term is applied to the sample not only qua member of a natural kind but also qua member of one particular natural kind. Any sample of a natural kind is likely to be a sample of many natural kinds; for example, the sample is not only an echidna, but also a monotreme, a mammal, a vertebrate, and so on. In virtue of what is the grounding it in qua member of one natural kind and not another? As a result of groundings, a term refers to all objects having the same underlying nature as the objects in the sample. But which underlying nature? The samples share many. What makes the nature responsible for the sample being an echidna the one relevant to reference rather than the nature responsible for it being a mammal (a nature it shares with kangaroos and elephants)? (1987, p. 73)
This, of course, is equivalent to Locke's worries about Bucephalus, who is not only a horse, but also an animal and a body and a thousand other things, and gold, which is also a metal, etc. Thus, we cannot simply annex the reference of a natural kind term to the unknown Real Essence of a sample, for nothing fixes the particular Real Essence of the sample which is relevant to the grounding of that term.

Devitt and Sterelny conclude that the nature relevant to the grounding of a particular term is established by a particular description under which a reference-grounder "thinks of" the sample (p. 74), but they acknowledge that this is not even close to a complete solution to the qua problem (p. 74) and that it forces them to endorse a "descriptive-causal" rather than a "pure-causal" account of reference (pp. 72–73). Philip Kitcher and I have argued at length elsewhere that this approach, and indeed any compelling solution to the qua-problem, vindicates much of Locke's central insight concerning the reference of natural kind terms. Here, however, it will suffice to point out that Locke's principled grounds for rejecting the CTR are precisely those which have forced contemporary thinkers to reject or modify that position.

4. Conclusion

In this paper I have tried to show, in particular, that Mackie is doubly mistaken to attribute an 'anticipation' of the CTR to Locke, and, in general, that Locke's views regarding the references of natural kind terms are not the confused curiosities they are sometimes taken to be. I have offered a fully general conception of Lockean Real Essences, on which his pessimism regarding our ability to discover the Real Essences of substances is neither misguided or uninformed, but is the natural product of both a Rationalistic conception of the natural world and a keen Empiricist sensitivity to the limits of empirical investigation. Perhaps more importantly, I have argued that Locke was not regretfully thrown off the scent of the CTR by his pessimism regarding the prospects for our knowledge: what Locke 'anticipates' is not the CTR, but the most compelling contemporary principled challenge to that view. Thus, Locke has been damned with faint praise for conceiving of the CTR, but giving up on it too easily: his own account of the matter is considerably more sophisticated than that which he is credited with anticipating.

Department of Philosophy
University of California, Irvine
I would like to thank Nicholas Jolley and Philip Kitcher for innumerable valuable suggestions, and the members of Alan Nelson’s conference in Early Modern Philosophy and Science (Irvine, CA; June 1997), especially Ed McAnn, for an extremely helpful discussion of this material. Any errors are, of course, my own.

1 This account of reference is usually credited both to Kripke and to Hilary Putnam (1973, 1975), but, writing in 1976, Mackie mentions only Kripke’s (1972) work.

2 Locke scholars are not alone in viewing genetic constitution as the natural candidate for the role of a Real Essence in biological cases (see, e.g., Putnam, 1975, p. 240), but it is worth noting that this is inconsistent with much of contemporary biological practice (see, e.g., Mayr, 1976, 1987; Stanford, 1995).

3 Here I follow Mackie in using the term a priori to characterize Locke’s views, though this terminology is somewhat ahistorical.

4 Mackie himself does not address this interpretive problem, arguing only that Locke is wrong to think that modes have no archetypes in nature or Real Essences which go beyond their Nominal Essences.

5 We should note in passing that Aronson and Lewis (1970) have claimed that Locke denies that mixed modes have Real Essences at all. This claim, however, is extremely dubious in light of Locke’s many unqualified and unembarrassed assertions to the contrary (an especially clear example is III v 14).

6 Of course, Woolhouse may be claiming only that the unity of mixed modes is not imposed by the physical world, but it is this very fact, along with Locke’s attribution of Real Essences to them, which suggests that a narrow, physicalist understanding of Real Essence is inadequate.

7 Mackie and others may be right to claim that mixed modes are not, in fact, purely or even primarily mental entities (cf. Ayers, Vol. II, ch. 8), but we must recognize that Locke takes them to be so when we try to account for his claim that their Real and Nominal Essences (along with those of simple ideas and simple modes) are identical.

8 As Locke points out, the properties of a mode may be endless, and therefore only deducible from, rather than specified in, its Essence (e.g., II xxxii 24). This is nonetheless consistent with the claim that a mode or simple idea’s Nominally Essential features will follow trivially from a specification of those very features.

9 See Guyer (pp. 132–33), for example, where he argues that the ‘explanation’ standard works for simple ideas and simple modes (and that Locke is mistaken about mixed modes), and Ayers (vol. II, pp. 57–58) where he seems to argue that identifying the Nominal and Real Essences of modes and relations was an “entirely natural way” of identifying a distinctive role played by these Nominal Essences in enabling us to achieve instructive conclusions by deduction alone in the purely hypothetical, a priori sciences.

10 See ‘The Epistle to the Reader’ at the beginning of the Essay.

11 See also IV vi 7.

12 It might be thought inappropriate to use the expression ‘logically necessary’ to describe the second constituent of Locke’s substantival Real Essences: the Rationalistic connections between the internal constitution and the experienceable features of a substance. Nothing hangs on this terminology, of course: what is important is that Locke took these connections to be like the mathematical connections between the definition of a triangle and its various properties (see above), that is, to exhibit a kind of necessity far stronger than the merely synthetic, empirical or natural variety that Mackie, Guyer and Ayers suggest.

13 This suggests that the letter (although not the spirit) of the Guyer/Ayers proposal that the Real Essence consists of those features of the Real Constitution which explain the possession of a particular Nominal Essence could be salvaged if it abandoned the claim that a Real Essence was a subset of the features of a Real Constitution and recognized that logically necessary connections between natural phenomena would be part of what
‘explained’ the possession of Nominally Essential features by substances. This revision, however, would simply turn their proposal into mine.

14 See also IV iii 16, IV iii 25, IV iv 12, and IV vi 9.
15 This approach allows us to interpret passages which might otherwise suggest a Mackian construal of Real Essences, such as the following: “we neither know the real Constitution of the minute Parts, on which their Qualities do depend; nor, did we know them, could we discover any necessary connexion between them, and any of the secondary Qualities” (IV iii 14). Here the first thing of which we are supposed to be ignorant is a paraphrase of the original definition of ‘Real Essence’ (from III iii 15), which might suggest that knowledge of Real Essences is distinct from knowledge of necessary connections. Note, however, that Locke is unwilling to use the term ‘Real Essence’ here, using instead ‘real Constitution of the minute Parts’. Also, notice that Locke here preserves his selective degrees of pessimism, claiming that even if we could discover Corpuscularian constitutions, we could not discover necessary connections between them and properties. The best understanding of Locke is to be gotten by taking this passage as a whole to deny that we have knowledge of either of the constituents of Real Essences.
16 In what follows, I will grant Mackie the traditional conception of ‘Real Essence’ (i.e., equivalent to Real Constitution or features thereof) in order to avoid begging the question against him.
17 While this passage discusses an artefact (watches), Locke explicitly introduces it in ‘Of the Names of Substances’ as simply a more familiar example for illustrating the same problems of essential difference and species for natural kinds (substances).
18 See also Ayers, Vol. II, pp. 73–74.
19 Early discussions of this problem can be found in Dupré (1981) and Kitcher (1982, esp. pp. 341–42).

REFERENCES

© 1998 University of Southern California and Blackwell Publishers Ltd.