Journal of Modern Philosophy

Epistemic Humility and Science in Lady Mary Shepherd

NATHAN BEAUCAGE
Harvard University

This discussion analyzes Lady Mary Shepherd's response to the skeptical question raised by Hume about necessary causation: how can we know that like causes will necessarily give rise to like effects? Regardless of whether her account is sound in principle, this discussion assesses if it is feasible *in practice*. Specifically, Shepherd's response is considered in the context of natural science. If the inductive claims germane to scientific inquiry can be grounded in reason, as Shepherd believes, then her anti-skeptical account prevails. However, a treatment of Shepherd's oft-neglected epistemology reveals that she has not entirely silenced the Humeans here. Shepherd's epistemic humility about external objects, when considered alongside her strict conception of natural kinds, forces us to employ an extra-rational inference when positing scientific claims. We must make an assumption about nature's regularity that is not licensed by reason. Shepherd's response to Hume's challenge therefore cannot be considered an unmitigated success, at least by Hume's lights. To get induction off the ground, she must make a concession to Hume about reason's limits, albeit a subtle one.

Keywords: Lady Mary Shepherd; Mary Shepherd; David Hume; causation; epistemic humility; induction

Contact: Nathan Beaucage <nathan.l.beaucage@gmail.com>

https://doi.org/10.25894/jmp.2631

1. Introduction

It is no secret that Lady Mary Shepherd's philosophy has David Hume as its target. Shepherd's treatise (1824: 2), partially entitled *An Essay upon the Relation of Cause and Effect, Controverting the Doctrine of Mr. Hume*, begins by stating that the Humeans' arguments and conclusions are 'illogical' and 'untrue', respectively. Shepherd is particularly concerned with Hume's skepticism about necessary causation and external existence. Shepherd, then, is standardly presented as Hume's foil: her project seeks to restore reason as grounding beliefs in necessary causal connection and external objects' existence. Shepherd thus hopes to free us from this skeptical 'malady' introduced by Hume, which he claims we have no 'cur[e]' for (2007a: 144).[1]

While quite right, this presentation belies her account's fundamental modesty. What Shepherd thinks we *cannot* know can be lost amid her discussion about all we do know through reason. For example, the secondary literature contains 'only brief acknowledgements that Shepherd affirms the unknowability of essences of material things' (Lindblom 2022). This neglect of Shepherd's epistemic humility is accompanied by a more general tendency to focus on her metaphysics rather than her epistemology (Tanner 2022: 71–72). Though it is true Shepherd's work is thoroughly metaphysical—Shepherd thinks refuting Hume requires uprooting his metaphysical system—skepticism prevails if the metaphysical tenets are not epistemically secure. It is one thing to say the world is constituted in such a way and another to prove we *know* it is such. To rebuke Hume, Shepherd must respond not only to his metaphysical challenge but also to his *epistemological challenge*: to establish knowledge of nature's uniformity, such that we can then make rational inferences about the future from prior experience.[2] Indeed, even if we grant Shepherd her metaphysics (a generous allowance, given its critiques, e.g., her causal principle's purported circularity and question-begging),[3] she could still struggle to address Humean skepticism's epistemological concerns, especially given her aforementioned epistemic humil-

1. I thank Keota Fields, Sandra Lindblom, Jeffrey McDonough, Alison Simmons, and referees for the *Journal of Modern Philosophy* for their helpful comments and encouragement. I further thank Sandra for granting me permission to cite unpublished material.

2. 'As to past *experience*, it can be allowed to give *direct* and *certain* information of those precise objects only, and that precise period of time, which fell under its cognizance: But why this experience should be extended to future times, and to other objects, which for aught we know, may be only in appearance similar?' (Hume 2007b: 35).

3. See, e.g., Tanner (2022: 74–75).

ity about external objects.[4] Accordingly, attending to Shepherd's epistemology lets us better assess if her anti-Humean project succeeds.

Before beginning, it is important to set our scope. Hume's skepticism is sprawling. The existence of external objects, other minds, the self, God, and necessary causal connection are all challenged, and Shepherd's response, in turn, tries to restore belief in each as grounded in reason. The present discussion, however, cannot treat Shepherd's entire epistemology. Instead, I discuss her epistemology as it concerns natural science, which seeks to prove '"an universal *necessity* of connection" between any *given* cause and its effect' in the empirical world (Shepherd 2020: 150).[5] Such scientific inquiry is characterized by its use of physical induction (Shepherd 2020: 145).[6]

This paper's focus on science is motivated by the original text—Shepherd clearly thinks it is important that science is saved from skepticism—and my belief that science affords the best opportunity to bring out Shepherd's epistemic humility, as it investigates the very objects Shepherd is epistemically humble about.[7] By examining Shepherd's science, we also see how her epistemology and metaphysics interact: what we can know about objects is partially a function of how our metaphysics understands such objects'

4. Tanner (2022: 72) identifies Ott (2011) and Fantl (2016) as among those who think Shepherd does not adequately respond to Hume's epistemological challenge. While Tanner is more optimistic than them about the success of Shepherd's response—he thinks it amounts to, at least by Shepherd's lights, a rational justification of the inference that objects alike in appearance will give rise to the same effects as they have in the past—it seems that he is ultimately sympathetic to my particular worry that this justification breaks down *in practice*, once we consider Shepherd's epistemic humility and account of kinds: 'Unless this problem [of uncertainty over objects' kind membership] is defanged, Shepherd will be unable to apply her epistemic solution to ordinary inductive inferences' (2022: 87). In other words, to use Tanner's terms (2022: 79), Shepherd might successfully respond to Hume's *prescriptive* demand (the rational justification of the inductive inference in principle) while still failing to meet his *descriptive* demand (the rational justification of the inductive inference in practice). Tanner is officially agnostic about whether Shepherd satisfies the descriptive demand, as his paper is only concerned with the prescriptive demand.

5. I note that Shepherd frequently capitalizes and italicizes words. I have preserved the original emphases when citing Shepherd throughout this paper.

6. For Shepherd, the principal difference between physical induction and mathematical demonstration (and, thus, between natural science and mathematical science) is not the underlying reasoning licensing each method's conclusions, but rather the type of objects they investigate: physical entities and abstract entities, respectively. '*The science of mathematics is truly but one branch of physics* . . . mathematics [is] a *species* under the same *genus* [as physics]; where the same proposition is the basis, there is truly but one science, however subdivided afterwards' (Shepherd 2020: 145).

7. Other researchers have also noted the relationship between Shepherd and science. For example, Tanner (2022: 86) says that 'it would not be surprising if not only Shepherd's ontology but also her conception of rational inquiry was influenced by chemical science'.

nature. Analyzing science highlights how Shepherd's epistemic humility, when imposed on her metaphysics, requires her to make concessions to the Humeans about reason's limits.

I begin by glossing Shepherd's science and its foundations: the causal principle and the inductive principle derived from it. I then problematize this model of scientific inquiry by introducing Shepherd's view of objects. For Shepherd, scientific claims must be probabilistic because of her account of objects. Specifically, her epistemic humility about external objects' essences and strict conception of natural kinds mean we can never be certain that any given object before us is of a certain kind and thus are unable to know what all its causal powers will be, even after experimentation. I then examine what grounds scientific claims' probability and contend that it rests on an inference according to which objects with the same sensible qualities probably have the same essences, i.e., that they are of the same kind and, as such, have the same causal powers: this object, because it looks like a previously observed object x (and is thus probably of the same kind as x), will probably have the same causal powers x did. Crucially, this inference—from sensible to essential likeness, and from past observation to future prediction—depends on a supposition about nature's regularity that is not rationally grounded. I submit that Shepherd's science, to get off the ground and make probabilistic inductive claims despite her epistemic humility and conception of kinds, must assume some proposition about nature that, to the chagrin of her response to Hume, cannot be grounded in reason.

2. The Causal Principle and Shepherd's Science

Often, Shepherd's anti-Humeanism is said to be theologically motivated. Shepherd (1824: 4), an avowed Christian, describes Humeanism as 'lead[ing] directly to a scepticism of an atheistical tendency, whose dangerous nature can require no comment, nor any apology for its refutation'. Yet it is also true that Shepherd was deeply concerned about Humeanism's consequences for science.

For Hume, we are mistaken to think that necessary causal causation is *out there*: an objective relation we can discover in the empirical world. This confused account of causation arises from repeated observations of conjoined objects—e.g., that the sun has risen each morning—and the associations we make thereby. From these past experiences, we infer that the sun will necessarily continue to rise each morning (all other things supposed equal). However, we cannot use reason to make this inference that the future will resemble the past: it is neither

intuitively nor empirically demonstrable.[8] On the one hand, *a priori* reasoning will not do, for this inference concerns the external, empirical world, which can only be apprehended through sensory experience, and not pure reason.[9] But appealing to experience results in circularity. It only follows that the sun will rise tomorrow since it has in the past, because, in the past, the future has mirrored the past. We do not have any good reason to think this past state of affairs *must* continue, and it is thus just as well to suppose that the sun will not rise tomorrow. The upshot is that what we mean when we talk about causation cannot be a necessary and universal connection between certain objects. On Hume's view, neither pure reason nor experience gives us the license to posit such a thing. Rather, what we actually have is a 'connexion . . . which we *feel* in the mind', such that we expect a certain object to be attended by another (Hume 2007b: 69). This subjective feeling, and the inference from past to future that underwrites it, is caused not by reason but by *custom*, which arises from 'natural instincts' and 'alone determines the mind, in all instances, to suppose the future conformable to the past' (Hume 2007b: 46; 2007c: 139). What first seemed to be necessary connection is thus, in fact, *constant conjunction*: 'Beyond the *constant conjunction* of similar objects, and the consequent *inference* from one to the other [through custom], we have no notion of any [causal] necessity or connexion' (Hume 2007b: 75).

Shepherd worries that this thesis of causal connection as constant conjunction—a subjective psychological construct—means scientific claims hold no water. If one thinks science makes claims about necessary causal connections in the external world, and we cannot in principle know of such causal relations, as Hume thinks, then scientific claims cannot be genuinely posited. Shepherd

8. Savvy readers will observe that, here, I effectively smuggle in the proposition that reasoning is necessarily demonstrative reasoning, as Hume would have it. Shepherd, then, must be laboring under the same notion (or so I assume). As I later discuss in the conclusion, it is in fact debatable whether Shepherd has the same conception of reason as Hume. This is a worthwhile inquiry, though it is distinct from my project. For present purposes—assessing Shepherd qua respondent to Hume's challenge—I need not weigh in here. Regardless of Shepherd's personal view of reason, a successful response to *Hume* (which Shepherd evidently takes herself to be giving) will need to satisfy *his* desideratum, i.e., to 'produce' a 'chain of reasoning', or a '*demonstrative* argument' (Hume 2007b: 35; 2007a: 62). I thank an anonymous referee for pressing me to make this explicit.

9. I am hinting here at Hume's distinction between *relations of ideas* and *matters of fact*, though I do not couch the discussion in such terms for brevity's sake. Propositions in the former category are known *a priori* through reason alone, intuitively (e.g., Pythagoras' theorem). Such propositions must fail the contradiction test: denying that a triangle has three sides yields a contradictory proposition. In contrast, matters of fact—e.g., the proposition in question about the future resembling the past—concern the empirical world. These propositions must pass the contradiction test: denying the proposition that the sun will rise tomorrow does not result in a contradiction. The notion of the sun not rising tomorrow is equally intelligible, clear, and distinct to us as the notion of it rising tomorrow. See, e.g., Hume (2007b: 28–29).

(1824: 186) writes that 'as long as the notions of Mr. Hume shall prevail, inquiries of this [scientific] nature will be instituted in vain; nor indeed is there any received doctrine upon the relation of Cause and Effect, which can be securely used, as an efficient instrument in the advancement of science'. Refuting Hume and reinstalling reason as 'the foundation of the whole principle of CAUSATION' is how we rescue science (Shepherd 1824: 81). Indeed, Shepherd (1824: 192) says her causal principle, which establishes knowledge of necessary causal connection, is 'the governing proposition in every science', without which we would look 'in vain' for 'improvement in any [science]'. We should now sketch how this causal principle (and the inductive principle following from it) are the 'only true foundations of scientific research' for Shepherd (1824: 194).

As the 'primary tenet of her metaphysics', the causal principle grounds Shepherd's philosophy (Bolton 2021). From it, we derive a rational basis for belief in the existence of external objects, other minds, God, the self, and necessary causal connection: the last being most relevant for our present purposes. Shepherd (1824: 34–35) motivates the causal principle as follows:

> Let the object which we suppose to begin its existence of itself be imagined, abstracted from the nature of all objects we are acquainted with, saving in its capacity for existence; let us suppose it to be *no effect*; there shall be no prevening circumstances whatever that affect it, nor any existence in the universe: let it be so; let there be nought but a blank; and a mass of whatsoever can be supposed not to require a cause START FORTH into existence, and make the first breach on the wide nonentity around;—now, what is this starting forth, beginning, coming into existence, but an action, which is a quality of an object not yet in being, and so not possible to have its qualities determined, nevertheless exhibiting its qualities?

The idea is that no object can come into existence of itself, that is, uncaused. An object which spontaneously 'start[s] forth into existence' would demonstrate a quality, or effect—that of the action of coming into existence—which could not, by definition, belong to that object when it was non-existent.[10] It would be a contradiction to say a non-existent object could cause its own existence, as an object could not have the power to perform the action of bringing itself into existence if there did not *first exist* a capacity to actualize that power. This capacity cannot inhere in a non-existent object, given that an object cannot exist before it is actualized. An object thus can only get its existence (or any other quality) by virtue of

10. Shepherd (1824: 46–47) thinks qualities and effects are synonymous: 'These changed qualities, are termed *effects*; or *consequents*; but are really no more than NEW QUALITIES arising from *new objects*'. Likewise, it is 'quite immaterial to the definition of this relation [cause and effect] whether an untried, or unobserved quality, be called *quality*, or *effect*' (Shepherd 1824: 52).

other objects with the capacity and potential power to *cause* that quality to come into being. Such causal powers only belong to extant objects, different from the object they cause to have the new quality (in this case, the quality of coming into existence). It is thus that 'this beginning to exist cannot appear but as a *capacity some nature* [other objects] *hath* to alter the presupposed nonentity, and to act for itself, whilst itself is not in being' (Shepherd 1824: 36).[11]

To see how this works, we can think of flint and steel producing fire. Fire and the qualities that constitute it—like its heat and orangish color—cannot exist absent flint striking steel. Rather, fire only has potential existence in the capacities of flint and steel to cause fire. When combined, flint and steel actualize their causal powers to create the qualities of fire. Fire, as the collection of these qualities, now exists as a new object, caused by two other objects combining. Though we need not dwell on the metaphysics here, we should note that the relata of causation are now *objects*, rather than a sequence of events, as Hume has it. It is *in the union* of flint and steel that fire simultaneously arises as 'a new nature, capable of exhibiting qualities varying from those of either of the objects unconjoined' (Shepherd 1824: 63). It is thus that flint and steel, upon joining with one another, are 'really to be a producer of [a] new being' (Shepherd 1824: 63).

From this causal principle, Shepherd (1824: 27) derives an inductive principle: '*Similar causes* must necessarily produce *similar effects*'. If the causal principle—that everything that begins to exist must have a cause other than itself—is true, it necessarily follows that like causes produce like effects. If there are two objects differing in qualities, we cannot explain each object's coming to be as the effect of the same cause(s). Otherwise, without positing a different cause to explain the different qualities, we would have qualities, or effects, which were without a cause, something the causal principle rules out. In other words, a difference in effects (a new quality) cannot arise uncaused: 'A difference of qualities could not arise of *itself*, could not begin its own existence' (Shepherd 1824: 56). Given that everything that begins to exist has a cause, we must explain what caused this difference to come into being, and the causal principle precludes this difference from occurring uncaused, whereby different effects would have to arise spontaneously from the same cause. Thus, different effects must be the result of different causes. Conversely, same causes must give rise to same effects. If the causes are the same, there is nothing to cause a difference in the effects, and the causal principle guarantees that a difference in effects cannot come from nothing, i.e., happen uncaused.

Hume's anti-realism about necessary causal connection, whereby custom and constant conjunction are 'utterly incapable of affording an *universal defi-*

11. As briefly mentioned earlier, there are legitimate reasons to question the metaphysical soundness of the causal principle. In any case, we will grant Shepherd the causal principle as she originally presented it without objection in the interest of this paper's epistemological focus.

nition [of nature's causal regularity]', is thus vanquished (Shepherd 1824: 66). Shepherd (1824: 66–67) grounds our belief about causal regularity in reason, not custom, and establishes nature's 'absolute INVARIABLENESS' as a '*strict necessity*'. Not only is it thus rational, given nature's uniformity, for 'the mind to predicate for the future as for the past', but we also have certitude about this (Shepherd 1824: 67). Like causes will, necessarily and universally, produce like effects.

Here, Shepherd thinks she has saved science from skepticism. The scientist now has a framework within which to make their claims and acquire knowledge of the external world and the causal relations among its objects. By '*reasoning* on experiment', we can take the 'abstract and demonstrative reason' guaranteeing nature's regularity and apply it to gain *a posteriori* knowledge of the empirical world (Shepherd 2020: 150). We can, in principle, conclude with 'equally demonstrative evidence' that there also 'must exist "an universal *necessity* of connection" between any *given* cause and its effect' (Shepherd 2020: 150). If we observe that certain objects give rise to others—e.g., flint and steel producing fire—and hypothesize that there was not an unknown variable contributing to the fire's production, then the flint and steel must be the causes of this instance of fire. The causal principle and the inductive principle guarantee this relation will obtain necessarily and universally and allow us to project our finding onto all future occasions where flint and steel meet (in like circumstances, where it is assumed there is no confounding variable). We can thus say with certainty that the concussion of flint and steel will cause fire, now and always.

3. Shepherd's Epistemic Humility

I want to throw some water on Shepherd's fire now. The above sketch of Shepherd's science is, to me, a touch rosy. Things become muddied when we appreciate Shepherd's epistemology and understand her as a not 'especially optimistic philosopher' (LoLordo 2020: 23). Indeed, I am uncertain that Shepherd entirely delivers science from the specter of skepticism. To be sure, that she has secured rational justification for the causal principle and physical induction (if we grant Shepherd her metaphysics) is no small feat. Shepherd meaningfully challenges Hume's attack on reason: we are no longer 'epistemically shut off from a grasp of causation's intrinsic nature' (Fantl 2016: 104). We can rationally speak of necessary causal connection, and the inductive principle gives the conditions by which we can, in principle, know of particular causal relations.

Yet, this inductive principle is just a *general* law of nature (and, with the concomitant causal principle, the 'one only law' of nature there is for Shepherd) (Shepherd 2020: 149). Employing empirical observation to demonstrate *specific* causal relations among objects on the basis of this principle, as science attempts

to do, is a different, thornier matter: 'A priori, we know not what particular effect may arise as the results of any *given cause*' (Shepherd 2020: 164). Knowing that like causes produce like effects need not mean we cannot be removed from knowing 'what effects will follow from the events observed thus far' (Fantl 2016: 104). I contend that when it comes to the beliefs we have about particular causal relations—e.g., that bread, if combined with the body, will always and necessarily have the effect of nourishing us (some ailment or spoiled bread notwithstanding)—we are forced to make extra-rational inferences, going beyond what the causal and inductive principles guarantee, because of a necessarily incomplete understanding of the external world and the essences of the objects therein. This is a direct consequence of Shepherd's epistemic humility about external objects and her strict conception of natural kinds.

As suggested in our earlier discussion of the causal principle, Shepherd (1824: 46) takes objects to be just what their qualities are, such that 'objects in relation to us, are nothing but masses of certain qualities, affecting certain of our senses; and which, when independent of our senses, are *unknown* powers or qualities in nature'. Likewise, she says 'we know nothing of objects but the *enumeration of qualities*' (Shepherd 2020: 145). Crucially, however, we cannot know *all* of an object's qualities. Some qualities are necessarily beyond our grasp, for we cannot know in principle the qualities that external, mind-independent objects have independent of our sensations:

> The union of the three following things are required to form the proximate cause for that great effect, the *formation* and *combination* of those aggregates of sensible qualities usually called objects; namely, first, the unknown, unnamed circumstances in nature, which are unperceived by the senses; secondly, the organs of sense, whose qualities mix with these; and thirdly, the living, conscious powers necessary to sensation in general. *In this union*, and *with it*, is the *creation* and *production of all sensible complex qualities called objects*, *such as we know them.* (Shepherd 2020: 60)

These sensible qualities—i.e., the effects of external objects causally interacting with our sensory apparatus—are 'the only, the original and immediate materials of our knowledge' (Shepherd 2020: 122). External objects 'can never be contemplated, *excepting under the forms of those unions* [between the senses and external objects]' (Shepherd 2020: 40). We thus only have acquaintance with objects indirectly via sensations. The 'given data' is 'nothing but our sensations . . . and their relations' (Shepherd 2020: 121).

These sensations, however, cannot be like the objects that caused them. Shepherd (2020: 112) thinks 'nothing can be like a *sensation*, or *idea*, or *perception*, but a *sensation*, *idea*, and *perception*'. Our perception of an external object is like

any other causal occasion: the combination of an external object, the self, and sense organs mix to produce *something new*, whose qualities vary from those of its causes before they were conjoined. In sensation, 'there must be a modification of the objects, which must . . . in some way alter them from the state in which they were, when existing unperceived' (Shepherd 2020: 41). We are then at a remove from the cause of our sensations (the external object) and its essence, which is 'entirely different from the essence of the sensation [the external object] causes' (Boyle 2018: 12). We thus know not of objects' *secret powers*: 'the real external unknown Causes in Nature, which determine the sensible qualities, as well as *every other Effect*' (Shepherd 1824: 60).[12] It is these unknown and unperceived essential qualities of objects that cause them to appear as they do in sensation, i.e., in their '*inward existence*' (Shepherd 2020: 48).

What we have at our disposal is then a necessarily '*incomplete definition*' of objects (Shepherd 2020: 59). An object's sensible qualities enumerate only '*one class of* [its] *effects*', leaving us 'wanting [qualities] for the proper definition of the objects' (Shepherd 2020: 81, 45). And while Shepherd (2020: 137) thinks we make do with sensible qualities, likening them to 'a *language*, which must be translated, before it can explain the actions of nature', some things are necessarily lost in translation. It 'never can be too much insisted on, (in order to maintain an *exact* philosophy,) that the *positive* nature and essence of unperceived beings *cannot* be known' (Shepherd 2020: 130). Shepherd (2020: 220), recognizing these epistemic limits inherent to humanity's lot, resigns that 'although we be philosophers enough to know it is impossible to do so, we are for ever endeavouring to catch at, and yet for ever disappointed at not meeting with, those essences'.

This epistemic humility has significant implications when considering Shepherd's account of kinds. For Shepherd (1824: 53), an object, to be of a certain kind, 'must comprehend all [that kind's] qualities *tried* and *untried*; *observed* and *unobserved*; *determined* and *undetermined*'. One object is not of the same kind as another 'unless it hath all its *qualities*, and no other than its qualities' (Shepherd 1824: 54). This all-or-nothing view is, as others have remarked, a 'radical' and 'extremis[t]' account with 'troublesome' and 'unpalatable' consequences (Tanner 2022: 76; Fantl 2016: 95; Tanner 2022: 87, 78). Here, it is essential to stress that an object's having certain sensible qualities is not sufficient for kind membership (though it is necessary, as '*truly similar* objects, must necessarily *appear* the

12. Hereafter, I use 'secret powers' (a term that Shepherd gets from Hume; see, e.g., 2007b: 35) and 'essences' interchangeably. I am unable to discern if they are distinct for Shepherd, who also seems to use them interchangeably. Lindblom (2022) suggests that they are in fact distinct. Regardless, any potential distinction would not be important for my purposes. Shepherd is clear that they are both unknowable qualities of objects: 'We are not acquainted with the "secret powers" of natural objects, either before or after experience'; likewise, 'the real essences of matter . . . we know not' (Shepherd 1824: 58; 2020: 130).

same') (Shepherd 1824: 105). Even if two objects apparently share all sensible qualities, these are mere 'signs' of their secret powers, which Shepherd's epistemic humility dictates we can never know (Shepherd 1824: 123). Unbeknownst to us, these apparently alike objects might have different essential, unperceivable qualities and would thus be different kinds of objects. Shepherd (2020: 140) explicitly endorses this possibility, writing that 'apparently like objects may in every sensible quality be similar, and yet they may essentially differ in their remote causes'. Such objects would, despite their sensible alikeness, be 'truly *other*' objects of different kinds (Shepherd 1824: 71). Thus, such a strict conception of kinds—when considered with Shepherd's epistemic humility about objects—rules out our ever being certain that an object in a present trial is of the same kind as one in a past trial.

This is a problem for causation, given that objects are the causal relata for Shepherd (1824: 55–56): '*Like* Causes, that is, *like* objects . . . must have like effects, or qualities'. If I do not know two objects are of the same kind, I cannot guarantee the object before me now will, in like circumstances, have the same causal powers as another putatively identical object I tested earlier. *This* present bread-looking object is not necessarily like *that* hour-old bread (which nourished me then) in kind, even if they appear alike. I therefore do not know if the present bread-like object will, when combined with my body, cause the effect of nourishment.[13]

The upshot is that the scientist must qualify claims about specific causal relations: it is *highly probable* that bread (precisely, an object deemed to bear all the sensible qualities we assign to the kind 'bread') will, if consumed, cause the effect of nourishment. This, to be sure, is not anything Shepherd herself would reject. Scientific claims are, in the best case, 'but a probability, although a high

13. An anonymous referee raised the point that Shepherd's reply to Hume may already break down here just because of her strict requirement of absolute similarity for kind membership. At one level, that is true. We assume that objects are of like kinds if they are deemed sufficiently similar, even though we cannot be certain that they belong to the same kind. 'Our everyday classifications, which are based solely or mainly on sensible qualities, fail to map onto sharply delineated natural kinds' (LoLordo 2019: 6). So, a Humean already has Shepherd on the ropes here, for she cannot prove that real-world inductive claims are necessarily true if we can never be certain that this object before us is just like another in kind, based on appearance alone. Be that as it may, Shepherd could still save face. Her ambition is arguably more modest: 'Establish[ing] that we use reason to arrive at our beliefs about future or unobserved causal relations . . . does not require establishing that such beliefs are always true or always justified' (LoLordo 2019: 11). We might have *reason* to think this object is likely of a certain kind, even if we cannot be certain, as the Humean wishes.

The real problem with inductive reasoning lies deeper, once the foundation of this probabilistic reasoning is unpacked: objects are probably of the same kind, *if their sensible qualities are sufficiently alike*. As I later explain, it is the underlying supposition licensing this inference from the sensible to the essential that spells trouble for Shepherd's rationalism. Though this problematic move is effectively entailed by Shepherd's strict account of kinds, the latter alone does not fully explain the inadequacy of her reply to Hume.

one' just because of our uncertainty about the essences of the objects these claims concern (Shepherd 1824: 119).[14] The epistemic divide in science is no longer between us and necessary causal connection as such. We know nature is uniform, insofar as like causes necessarily and universally produce like effects. Rather, a gulf stands between us and the natures of objects, that is, of particular causes: 'The only difficulty the mind has to do with, in forming a right judgment concerning its expectations of the qualities of objects, is the probability, or the contrary, whether the circumstances which formed them, are the same as heretofore or not' (Shepherd 1824: 112).

The skeptical question raised by Hume has thus '*shift*[ed]' to 'the consideration of the *method whereby* [like causes'] *presence* may be *detected*' (Shepherd 1824: 60). When I claim that this bread-like object will probably nourish me, what is probable is not the causal relation itself. We now know that necessary causation is a law of nature, so the bread will necessarily nourish me in like circumstances. Instead, the claim is probable insofar as I cannot be sure I have bread before me. Though if this object is, in fact, of the kind 'bread', it *must* nourish me.

So, despite our epistemological limitations, we persist and make probabilistic scientific claims. Now, it seems we need an account of what underwrites these claims' probability. If we cannot know an object is of a particular kind, what gives us license to think that it is *probably* of that kind? Relatedly, why might we reasonably think one claim about an object's expected effects is more probable than another? It seems much more probable (and reasonable to believe) that a bread-looking object will nourish me when consumed, rather than make me hungrier. Pushing further on what grounds this probability invites trouble for Shepherd.

14. There is a one-off instance where Shepherd (1824: 54; emphasis mine) might appear to suggest that it is possible to determine with *certainty* whether two objects are alike: 'Upon any occasion where we are either *certain*, or have a high probability, that an object presented to us is truly similar to a former one, and was created by the same causes . . .' Otherwise, however, Shepherd suggests our knowledge of objects being of like kinds is merely probabilistic. For example, she writes of 'the difficulty there is in the *detection* of like objects, on account of our inability to form a judgment concerning their *internal constitutions*, from the *mere appearance* of their sensible qualities' (1824: 117). See also Shepherd (2020: 101, 106). Tanner (2022: 80, n. 14) seems to agree, writing that Shepherd 'does not claim absolute certainty for this claim, although she sometimes comes close'. Moreover, it is not clear in light of our above discussion what grounds Shepherd would have for claiming that we can have certitude in this respect. We should thus impute to Shepherd the view that knowledge of like kind membership is, in practice, probable at best, and consider this above quotation as either a mistaken aberration or Shepherd referring to an ideal (but unrealizable) case where we would have certainty that the secret powers of two objects were exactly the same.

4. The Problematic Supposition

Shepherd (1824: 118) writes that 'the senses . . . are considered capable of *nearly* detecting the similarity of internal constitutions'. Elsewhere, we are told that 'sensible qualities being similar is a presumption in favor of similar secret powers', and, furthermore, that 'the greater number of qualities which are exhibited as similar to the senses, the higher does the proof become, of the secret powers being also similar' (Shepherd 1824: 128, 123). Thus, Shepherd thinks that when we are presented with objects that appear sensibly alike, this feature leads us to infer that their imperceptible essences are the same: 'Similarity of appearance proves the presence of like proximate cause; *other things* therefore *being equal*, it proves the presence of a really similar object' (2020: 161, n. 6).[15] Together, these two shared features—sensible and essential likeness—fulfill the necessary and sufficient conditions required to deem these objects members of the same kind (though her 'nearly' qualification above reminds us we cannot be certain these conditions obtain, since objects' secret powers are always unknown to us).

When we make probabilistic scientific claims, this is precisely the inference grounding their probability. The more confident we are that we have enumerated an object's sensible qualities, the more probable it is that the object has the same secret powers (and, thus, is of the same kind) as another object with those same sensible qualities (and, hence, the more probable it is that the present object will cause those effects which we know its putative kind necessarily demonstrates). This inference allows for our observations of objects' sensible likeness, which show that objects' secret powers are similar '*thus far*', to then 'beget a proportional belief' that leads us to 'expect again the same, under similar circumstances' in future instances concerning these apparently alike objects (Shepherd 1824: 61). For example, it is thought that a present object seemingly identical to the bread that nourished me yesterday will have this same effect today, just because the two objects appear alike and, as such, are thought to have the same causal powers. In this way, a reliable connection is established from the

15. Shepherd would object that this sketch does her a disservice. Indeed, she says we go further than sensible qualities and try to assess objects' likeness by figuring out if the same causes contributed to each object's formation: 'It is not the *mere* appearance of the external qualities, which can determine the mind to expect certain effects; it is only that *appearance in conjunction with the recollection of the probable causes, that have produced the objects in question*, and which lead the mind to suppose the said objects to be truly bread, water, or hartshorn' (Shepherd 1824: 102). It is thus that objects' sensible qualities 'only guide us', while reasoning upon 'the *causes*, used in the *formation of an object*' is dispositive (Shepherd 1824: 103). However, the same principle applies in either case. We are still inferring from the perceived to the unperceived based on a presumed correspondence between them: 'Appealing to the origins of things is just to appeal to further similarity of appearance' (Tanner 2022: 82).

observable to the unobservable, as well as from past experience to present and future trials.

We can see this inference at work in Shepherd's oft-cited 'candle passage' (2020: 160), whereby she describes ordinary inductive practices:

> To the question which inquires, 'Whence it is, the child supposes a candle will burn his finger upon a second trial, as upon a previous occasion?' I answer, that the child considers, upon the second *appearance of a candle*, that the *candle* is a *candle*. He knows nothing about 'secret powers, 'methods of formation', &c. but owing to the sensible qualities being precisely alike, he considers the object presented to him to be a similar one to that, which he formerly observed of the same appearance; he therefore *expects* it will prove itself the same in all its qualities [e.g., that it will burn him if he touches it].

The child implicitly employs the inductive principle—like causes create like effects—to reason that this candle, too, will burn him. But this glosses over an important and necessary antecedent step. The child's reasoning must presuppose the second object is, in fact, a candle, just like the first object he encountered (Shepherd 2020: 162). We now know he cannot be sure of this. He must *first* infer that, if the objects are alike so far as appearances go, then they are likely of the same kind: this thing before him is probably a candle. Only then can he infer, using the inductive principle, that the putative candle will, like the first candle, probably burn him if touched. But what grounds this first inference from the sensible to the essential?

Shepherd (1824: 120, 118) says this inference is founded on a causal relation: an observed '*frequency of repetition*', whereby objects with like sensible qualities are repeatedly shown to demonstrate like effects, leads us to think there is a '*regularity in fact* of the course of nature, which must itself be looked upon as a general Effect, from a general Cause'.[16] We thereby come to form a 'trust in the regularity of nature in forming her compound objects alike' (Shepherd 2020: 87). This observed regularity among particular objects thereby licenses the

16. Here, a connection holds between Shepherd and Hume, insofar as both suggest that this belief we have about causation emerges from repeated observations: that the sensibly alike objects observed so far beget like effects leads us to think this is nature's regular course. The key distinction is that Shepherd thinks the belief can be grounded in reason, whereas Hume imputes it to custom alone. (For related discussion, see note 26: Shepherd seems to agree with Hume that we are naturally predisposed to make this inference, but, again, she would insist that it is grounded in reason and thus justified by something more than our natural psychology).

general inference from appearance to essence sketched above.[17] We 'regularly depend on' this apparent regularity to make inductive inferences (Shepherd 1824: 121).

The presumption that objects with like sensible qualities are of like kinds (and, thus, have like causal powers) therefore issues from an empirical claim about a causal relation observed among particular external objects. But such claims, as we have shown, are probable and cannot be necessarily demonstrated. Indeed, Shepherd (2020: 88) says we are 'ignorant' of this regularity's cause. Because of Shepherd's account of objects and her epistemic humility about them, we have no way of ascertaining whether nature's regular state is such that sensibly alike objects are of like kinds: 'Nature, whatever her apparent course may be, still keeps [us] "*at a great distance from all her secrets*"; . . . and therefore, . . . there is nothing contrary to her *real* course [i.e., like causes creating like effects] . . . that singular varieties should take place [by means of some secret efficient cause]' (Shepherd 2020: 89). While it may seem that, in our experience, 'the same sensible qualities have been regularly exhibited along with like secret powers', for all we know, it could be the case that sensibly alike objects in fact *never* have the same set of causal powers (Shepherd 1824: 61). It is just that our experimentation hitherto has not found the circumstances that would reveal a difference in the objects' powers. At a specific temperature and climate, perhaps this bread-like object will nourish, while that seemingly identical bread-like object will not. We cannot be certain that these objects are alike 'unless we first know how they would behave in all possible circumstances' (LoLordo 2019: 10).

But such further experimentation would in fact prove futile in resolving this worry. Should we grant (quite improbably) that we could exhaustively test two apparently alike objects in an *experimentum crucis* and observe that their effects never differed in any possible set of circumstances, there could remain a difference in the objects' secret powers whose nature is unobservable to us. It is always possible that 'some *unobserved* cause might creep in to alter the object, whilst appearing the same' (Shepherd 1824: 61). These would be different objects, despite being, by all appearances, identical. There is then, no matter what, always a possibility that sensibly alike objects are essentially different.

17. There is potentially some tension here, considering that Shepherd critiques Hume for thinking that necessary causation as a general law of nature must be established by demonstrating the existence of particular causal relations: 'But supposing in each *particular* instance under our notice, we could descry the "secret powers of nature", the general question concerning *all* like causes would still remain unanswered; an universal conclusion could not logically be deduced from the particular premises concerning it' (Shepherd 1824: 59–60). Here, Shepherd seems to be employing a similar kind of 'bottom-up' reasoning: particular observations lead us to believe in a general regularity.

Even if we stipulated that it was impossible for there to be such unobservable differences, meaning that we could, in principle, ascertain that the two objects have the same secret powers if they demonstrated no differing effects in all possible sets of like circumstances, this still would not be enough to guarantee the objects will necessarily have the same causal powers in *the future* (Shepherd 2020: 88). Indeed, nature can intervene at any time after such an experiment and alter the essences of the objects, such that they would then have different causal powers and, as such, bring about different effects: 'Our *past* experience [can never] acquaint us, what latent influences, what new unseen events, what "secret powers" might be drawn from the mysterious storehouse of unperceived nature to alter our experience in future' (Shepherd 2020: 166).[18]

So, once again, because of Shepherd's epistemic humility, we can only say that nature's regular course is such that it is *highly probable* that objects with like sensible qualities will be of like kinds, i.e., have like causal powers and demonstrate like effects. To be sure, this claim's uncertainty itself need not be a problem for Shepherd. We know Shepherd accepts that scientific claims must be probabilistic because of our epistemic limits. However, this claim in question—about nature's regularity—is what grounds those scientific claims' probability. It therefore needs a distinct ground to justify its own probability. When we probe further here, things become epistemologically treacherous, at least by Shepherd's lights. Indeed, this claim (the regular course of nature is such that objects with like sensible qualities will probably be of like kinds, and, as such, will probably have like causal powers and effects) is *not* rationally grounded.

Nothing about the causal principle—specifically, the inductive principle derived from it that like causes necessarily create like effects—entails this claim about nature's regularity. This says something more about nature than the causal principle guarantees. We can easily picture a state of affairs in nature where sensible qualities do not serve as generally reliable signs of essences. That an object looks like bread would, in this world, not be a good reason to think it will probably have the effects expected of bread, e.g., nourishment when eaten. On this model of nature, objects' secret powers would have to be altered more frequently to account for the unreliability of sensible qualities as a sign of objects' kind membership. It could even be the case that apparent likeness among objects is a good reason to expect that those objects are probably *not* the same kind. In such a world, I would see a bread-like object and suspect that it probably will not nourish me, just because that other bread-like object I consumed an hour ago nourished me.

18. Alternatively, as suggested in the above note, this observation of one set of objects could not be probative as to *all* objects. And establishing the latter's existence—a general regularity—is what we seek here.

Either of these hypothetical regular states of affairs in nature would be just as compatible with the causal principle as the state of affairs Shepherd has us assume to support our scientific claims' probability. Such worlds seem dramatically different from how we take ours to be, but neither scenario sketched above would violate the laws that like causes create like effects or that nothing can arise uncaused. Moreover, these two principles alone do not give us reason to endorse any of these models of nature over another, or to think that one is more probable. An appeal to experience cannot be definitive here either because of our epistemic limitations. We have no way of knowing for certain that this 'regularity' we perceive in nature's operation is not in fact illusory. And, even granting that we could affirm that there is such a regularity, it would still potentially be subject to future change. Thus, that the regular course of nature is such that objects with like sensible qualities will probably be of like kinds is, at best, a contingent, and not necessary, feature of nature.[19]

The result is that the inference on which the probability of scientific claims is founded—that we can reliably infer from an object's sensible qualities what kind of object it is, and, as such, what causal powers it has—bottoms out in a supposition about the state of nature that is extra-rational, i.e., not grounded by the causal principle. Hume's epistemological concern thus looms large. Shepherd struggles to demonstrate how, in our inductive reasoning about particular causal relations among external objects, we rationally move from the proposition that '*such an object has always been attended with such an effect*' to the separate claim that '*other objects, which are, in appearance, similar, will be attended with similar effects*' (Hume 2007b: 35).

Shepherd's problem is that induction, to be of any practical use, requires that we know (or, at least, reasonably suspect) an object is of a certain kind. While the causal principle guarantees induction's basis—like causes create like effects—we

19. This formulation supposes that we could, in principle, verify the existence of such a regularity (and that its existence would then be contingent, and potentially subject to future change). But once that premise is rejected—that we could confirm this kind of regularity, contingent or otherwise—this claim must be further qualified. The claim one must make, strictly speaking, is that the regular course of nature is *probably* such that objects with like sensible qualities will probably be of like kinds. But this is just as unverifiable as the first formulation, even if it is more modest. The same objections apply, insofar as both claims are predicated on empirical observations. While, so far as appearances go, experience may show us that sensibly alike objects usually produce the same observable effects (and are thus presumably of like kinds), such that this is then probably nature's regular course, Shepherd's epistemic humility means our observations alone are not probative. There could always have been, for example, some unobserved quality before us that in fact rendered the objects different kinds, with different secret powers, unbeknownst to us (see the discussion on p. 15). If nature's regular course is probably such that objects with like sensible qualities will probably be of like kinds, this can only be the case if we first presuppose that sensible qualities are reliable signs of secret powers. As I argue, I am unsure how reason can justify that assumption.

can only make an inductive inference if we think that a given object, or cause, is of the same kind as one in the past. If I do not know that I have two like objects, then I do not know if this bread-like object before me will behave like yesterday's bread. Here, her hand is forced. Because of our 'inability' to judge objects' kind from 'the *mere appearance* of their sensible qualities' (Shepherd 1824: 117), we must suppose that nature is regular in a way that makes sensible likeness a reliable sign of essential likeness. Otherwise, past observations of objects would have no probative weight. Without it, the child's first observation of the candle would tell him nothing about the causal powers of the second candle-like object he sees.

To get induction off the ground, then, we must make a supposition about nature's regularity that licenses an inference from an object's appearance to its kind: from what I know to what I cannot know. My belief that this present bread-like object is, in fact, bread and will thereby nourish me is based on something I cannot know through reason and is thus extra-rational. As stated before, Shepherd (2020: 88) admits that we are 'ignorant of the *cause* for the regularity' that underwrites this inference. However, I wish to say that our ignorance here in fact goes a step further. We cannot be certain that there is such a regularity in the first place—or even confident that there probably is such a regularity—even though we presuppose that there is one when reasoning inductively, as we do when making scientific claims. If my discussion has been successful, it should be clear how this extra-rational leap in scientific inquiry arises as a direct consequence of Shepherd's epistemic humility and her account of kinds.

5. Conclusion

What to call this supposition and how to explain how we come to have it—and what might ground it, if not reason—I leave open. One possibility unmentioned thus far is that it *is* reason, albeit a conception of reason distinct from the Humean one presupposed by this discussion (see note 8). For example, Landy (2024: 81) argues that Shepherd can be interpreted as giving a generally Kantian account of reason: reason is in part *constitutive* of our representations of objects, rather than just a 'process which operates over these perceptions' after the fact (Hume's view, according to Landy).[20]

What Shepherd believes reason to be is important for present purposes, insofar as one's account of reason has potential implications for what might then

20. I focus on Landy here, but Tanner (2022: 72) also notes 'the different ways Shepherd and Hume understand what it is to give a reason'. Hume demands 'demonstration grounded in non-contradiction', whereas Shepherd, on Tanner's reading, has 'a more expansive conception of rationality than Hume' (2022: 72, 85).

be sufficient to justify reason's conclusions. Maybe Shepherd fails by Hume's lights, but what about her own? Perhaps these are distinct assessments, and the shortcomings I charge her with are, in fact, misplaced. Landy thinks Shepherd's Kantian view can explain why she says 'an argument . . . in fact is never made' in reply to Hume's challenge that we explain the reasoning underlying induction (Shepherd 1824: 122). This 'conclusion' that certain sensible qualities will follow from the experience of other sensible qualities is '*already* contained *in the experience* of the object' (Landy 2024: 93; emphasis mine). The proof sought is not found in a chain of ex post facto reasoning but is instead 'nothing more than the clear perception of a universal relation' (Landy 2024: 93). If Shepherd restores reason to science, then it is not the sort of reason susceptible to demonstration through argument. We have a '*process of reasoning*', whereby 'neither *before* nor *after* experience, the *particular* kind of Effects from given Causes should be discovered' (Shepherd 1824: 139). One might then wonder if my work here—evaluating Shepherd as having to provide a chain of reasoning in support of induction—has been a category error of sorts.

Such a conclusion, however, is far from entailed by the above. For one, there is no critical consensus on what Shepherd thinks reason is. Landy (2024: 80) notes that 'Shepherd writes very little that makes explicit what she takes reason to be' and says his Kantian reading of her on reason is merely 'plausible'. And other scholars, in contrast, hesitate to read Kantianism into Shepherd.[21] But more importantly, even if Shepherd is a Kantian about reason (or otherwise non-Humean), that need not preclude her from giving the kind of justificatory account sought by Hume: to 'produce' a 'chain of reasoning', or a '*demonstrative* argument' (Hume 2007b: 35; 2007a: 62).[22] A descriptive account of our mental processes is distinct from an analysis of the associative reasoning that may issue from those processes.[23] The causal principle could be a 'structural aspect of experience itself' beyond demonstration (Landy 2024: 93), but the reasoning which facilitates that principle's application to scientific inquiry is a different matter. Landy (2024: 93), glossing Shepherd, rightly observes that the conclusion that a given object must produce certain effects is demonstrative *only* when we have

21. See, e.g., Paoletti (2011: 58), who notes the 'striking differences between Shepherd and Kant on causality'.

22. In the context of the causal principle, Cruz (2023: 1338) understands Shepherd as 'aim[ing] to *demonstrate* the maxim', even if one follows Landy in holding that Shepherd thinks our knowledge of the causal principle is 'already built into the content of sense perception'. Cruz is explicitly responding to Landy here.

23. I thank Alison Simmons for suggesting I put the point in such terms. Shepherd (2020: 79) hints at this distinction in another context: 'This, and similar essays are . . . intended . . . to analyse the complex operations of our minds, with such care and nicety, as may show what possibly consistent method has been used in the generation of our belief of external nature; and afterwards to examine if reason will support the notions, which have been formed concerning it'.

first 'confirmed the causal powers of an object . . . and we experience the sensible qualities that we know are the effects of that object'. Justifying inductive reasoning requires explaining how we get such 'confirmation', and Shepherd is not entitled to it by the causal principle alone. She needs some kind of argument: a chain of reasoning.

Shepherd's above remark about the absence of an 'argument' should also be considered in context. Shepherd cites Hume as seeking an argument supporting the 'reasoning . . . [that leads us] *from the mere sensible qualities of things* to expect their future Effects' (Shepherd 1824: 122; emphasis mine). But Shepherd thinks that argument would be a fool's errand. We do not reason from sensible qualities per se but rather take them as 'SIGNS of the secret powers' (Shepherd 1824: 123), a distinction Shepherd is at pains to draw throughout her work (see, e.g., 1824: 102, 109, 113; 2020: 44, 69, 77; see also note 15). Thus, while Shepherd rebukes any attempt to make *this* argument to Hume, using his particular framing of induction, that need not preclude an argument justifying *her* account of inductive reasoning. Textual evidence suggests this is just what she seeks to do.[24]

So, I think it is reasonable to evaluate Shepherd as I have, even if Landy's work makes it plausible that my framing of Shepherd's response to Hume is misguided. And if I am wrong about all this, that still need not disturb my conclusion that Shepherd fails to silence Hume. If Shepherd is in fact uninterested in providing a chain of demonstrative reasoning, then it would seem she is no longer playing the game by Hume's rules. If she succeeds, then she succeeds at a different game, perhaps resisting or sidestepping but not directly responding to Hume's challenge as such. Regardless of whatever Shepherd thinks she is trying to do—or actually does—she cannot give a satisfactory reply to Hume, at least by his lights. This is my central point.[25]

Besides reason, other options remain for explaining what might underpin the supposition at induction's heart. Perhaps it is akin to Hume's account of how we are naturally disposed to believe in nature's regularity. We cannot help but

24. See, e.g., Shepherd (1824: 69) ('*Reason* . . . afford[s] an argument, for the expectation of similar effects from similar causes'); Shepherd (1824: 125) ('The reasonable argument is framed, that the same secret powers will accompany the sensible qualities which have ever done so, when elicited from like *apparent Causes*'). As mentioned in note 22, Cruz (2023: 1337) similarly reads Shepherd as seeking to make a demonstrative argument justifying the causal principle: 'Shepherd's aim in the opening chapter of ERCE [*An Essay upon the Relation of Cause and Effect*] is not only to refute Hume's argument but to prove that the [causal principle] is demonstratively true'.

25. Tanner (2022: 84) comes to a similar conclusion when assessing whether Shepherd's response to Hume is justified by an appeal to parsimony (i.e., a non-demonstrative reason): 'The committed Humean would clearly reject Shepherd's response as a non-skeptical solution. . . . It is not deductively justified'.

think this is the way things are.[26] Alternatively, it could be parsimony. One may think nature is essentially simple and that we need not posit more natural kinds than those that objects' observed qualities render necessary.[27] A third possibility, somewhat like Landy suggests, is that it is a foundational self-evident principle known via intuition but not justifiable through reason (at least in the Humean sense of the word).[28] In any case, however we understand this supposition's

26. Shepherd gestures at something like this. To be sure, she, against Hume, explicitly denies that custom grounds this belief: 'The knowledge that they will assuredly take place [that an object will produce certain effects, given that it has certain sensible qualities], when existing in like circumstances, is founded upon much stronger principles than those of custom and habit' (1824: 100). Still, like Hume, Shepherd (1824: 126) suggests our expectations about nature's regularity arise from an inborn capacity; we tend toward this reasoning by nature: 'It is one of the most ordinary modes of reasoning that the generality of mankind possess; to consider invariability of recurrence as incapable of arising from chance'.

The skeptical mode I have adopted in this discussion is then, for Shepherd, very unnatural. Most of us non-skeptics, having 'plain understandings', are 'as much *determined* to action [in cases of high probability], as by demonstration. [The mind] cannot stand hesitating, and therefore "takes a step", (in arguing from the sensible qualities to the future effects of things), governed by a *high probability* founded on REASONING "that *they* ARE" connected with like secret *powers, on which the Effects entirely depend*' (Shepherd 1824: 124). The result is that this probabilistic reasoning is 'nearly demonstrative, and practically is entirely so' (Shepherd 2020: 106). In other contexts, Shepherd (2020: 78) counsels that we 'choose to believe' in certain propositions and then 'never doubt after', even as we are unable to 'perfectly demonstrate' them. Here, Shepherd is responding to the skeptical worry that external objects' existence is dependent on one mind, such that the universe will cease to exist when that mind ceases to exist. And later, she writes that 'the knowledge of external nature is but an inference from reason . . . so its absolute independency of each mind can have no further certainty than such inference, however strong it may be, can afford' (Shepherd 2020: 101). Perhaps my discussion would elicit a similar admission from Shepherd.

27. There is some textual evidence to support the idea that Shepherd appeals to parsimony. For example, Shepherd (1824: 94) says that 'no greater number of invariable antecedents and consequents are wanted, than what is necessary, in order *to observe* what circumstances *affect* each other, or the contrary'. Likewise, 'we do not *imagine* when we are not aware of it' any '*unobserved* cause . . . creep[ing] in to alter the object, whilst appearing the same' (Shepherd 1824: 61). Tanner (2022: 87) argues for this reading of Shepherd, though his point is that a principle of parsimony is *rational* and 'vouchsafed by her metaphysical system'. It is not an ad hoc hypothesis about nature, as I suggest in the body text. If this appeal to parsimony is in fact rational, like Tanner thinks, then it cannot be rational in the sense used throughout my discussion.

28. Folescu (2022: 486) makes this argument about the causal principle and suggests that it is best interpreted as supported by extrinsic, pragmatic considerations rather than justified by reason. Given Shepherd's (2020: 148) comment that 'there could have been no science' without 'the essential power of abstracti[ng]' from one object to all others like it, I am sympathetic to applying Folescu's reading of the causal principle to the related supposition about the regularity of nature I discuss in this paper. Perhaps Shepherd would be receptive to the idea that this supposition, while not demonstrable, nevertheless has 'fruitfulness' and 'is necessary for science' (Folescu 2022: 486).

And, of course, as the parenthetical in the body text suggests, intuition need not be totally distinct from reason. An anonymous referee pointed out that intuition can be partly constitutive of reason, as it is, e.g., in certain interpretations of Descartes, Leibniz, and the Cambridge Platonists. Landy (2024: 93, n. 23) makes a similar observation: 'It appears that intuition, demonstration and reason [in Shepherd] may not come apart as readily as Folescu needs'.

ground, it is neither the *a priori* causal principle nor *a posteriori* knowledge found on its basis. Constrained by her epistemic humility and account of natural kinds, Shepherd's science assumes a proposition about nature that cannot be demonstrated through reason.

However, it seems science could not accomplish much without this supposition as a 'guiding circumstance by which to form a judgment of the future' (Shepherd 2020: 77). Lacking reason to believe that objects before us are the same kind as those prior, past observations of objects would amount to isolated, one-off causal relations that give no future insights: something that is antithetical to scientific inquiry, which Shepherd (2020: 156) thinks of as 'enabl[ing] us to understand and imitate nature'. Nevertheless, if my reading of Shepherd is correct, Hume's problem of induction still lurks, albeit in an attenuated capacity. Though this concession to Humean skepticism is subtle, it shows that Shepherd has not entirely extricated science from Hume's grasp. Her account of natural kinds and epistemic humility make this an unavoidable conclusion.

Competing Interests

The author has no competing interests to declare.

References

Bolton, Martha. 2021. "Mary Shepherd." In *The Stanford Encyclopedia of Philosophy* (Spring 2021 Edition), edited by Edward N. Zalta. https://plato.stanford.edu/archives/spr2021/entries/mary-shepherd/.

Boyle, Deborah. 2018. "Introduction." In *Lady Mary Shepherd: Selected Writings*, edited by Deborah Boyle. Library of Scottish Philosophy. Exeter: Imprint Academic.

Cruz, Maité. 2023. "Shepherd's Case for the Demonstrability of Causal Principles." *Ergo* 10 (46): 1333–58. DOI: https://doi.org/10.3998/ergo.5183.

Fantl, Jeremy. 2016. "Mary Shepherd on Causal Necessity." *Metaphysica* 17 (1): 87–108. DOI: https://doi.org/10.1515/mp-2016-0007.

Folescu, M. 2022. "Mary Shepherd on the Role of Proofs in Our Knowledge of First Principles." *Noûs* 56 (2): 473–93. DOI: https://doi.org/10.1111/nous.12365.

Hume, David. 2007a. *A Treatise of Human Nature*. Edited by David Fate Norton and Mary J. Norton. Vol. 1. Oxford: Oxford University Press. DOI: https://doi.org/10.1093/actrade/9780199596331.book.1.

Hume, David. 2007b. *An Enquiry Concerning Human Understanding*. Edited by Stephen Buckle. Cambridge Texts in the History of Philosophy. Cambridge: Cambridge University Press. DOI: https://doi.org/10.1017/cbo9780511808432.005.

Hume, David. 2007c. "Abstract of *A Treatise of Human Nature*." In *An Enquiry Concerning Human Understanding*, edited by Peter Millican, 133–45. Oxford World's

Classics. Oxford: Oxford University Press, 1740. DOI: https://doi.org/10.1093/owc/9780199549900.001.0001.

Landy, David. 2024. "Shepherd on Reason." *British Journal for the History of Philosophy* 32 (1): 79–99. DOI: https://doi.org/10.1080/09608788.2023.2213256.

Lindblom, Sandra. 2022. "Humility about Essences." Unpublished manuscript.

LoLordo, Antonia. 2019. "Mary Shepherd on Causation, Induction, and Natural Kinds." *Philosophers' Imprint* 19 (52): 1–14.

LoLordo, Antonia. 2020. "Introduction." In *Mary Shepherd's Essays on the Perception of an External Universe*, edited by Antonia LoLordo, 1–24. New York: Oxford University Press. DOI: https://doi.org/10.1093/actrade/9780190854263.book.1.

Ott, Walter. 2011. "Review: *Causation and Modern Philosophy*." *Notre Dame Philosophical Reviews*. https://ndpr.nd.edu/reviews/causation-and-modern-philosophy/.

Paoletti, Cristina. 2011. "Restoring Necessary Connections: Lady Mary Shepherd on Hume and the Early Nineteenth-Century Debate on Causality." *I Castelli di Yale* 11: 47–59.

Shepherd, Mary. 1824. *An Essay upon the Relation of Cause and Effect, Controverting the Doctrine Of Mr. Hume Concerning the Nature of That Relation, with Observations upon the Opinions of Dr. Brown and Mr. Lawrence, Connected with the Same Subject*. London: S. Gosnell.

Shepherd, Mary. 2020. *Mary Shepherd's Essays on the Perception of an External Universe*. Edited by Antonia LoLordo. New York: Oxford University Press. DOI: https://doi.org/10.1093/actrade/9780190854263.book.1.

Tanner, Travis. 2022. "How Good Was Shepherd's Response to Hume's Epistemological Challenge?" *British Journal for the History of Philosophy* 30 (1): 71–89. DOI: https://doi.org/10.1080/09608788.2021.1979932.

Submitted: 31 August 2024 **Accepted:** 11 October 2025 **Published:** 26 March 2026

aperio