

Mary Shepherd's Two Senses of Necessary Connection

Mary Shepherd's proof of external existence rests on an account of cause and effect. At the same time, ideas of cause and effect are explained in terms of the mechanical action of external objects on sense organs. This sounds circular. Shepherd claims that the circularity can be avoided if we attend to differences between the '*internal and external existence of objects perceived and unperceived*' and the *method and action of causation*. I will show that Shepherd's two senses of necessary connection, when understood with attention to the distinction between perceived internal, objects and unperceived, external objects, shed light on her response to the circularity problem.

By Jennifer McRobert

Mary Shepherd's Two Senses of Necessary Connection

Shepherd's two major philosophical works, *An Essay upon the Relation of Cause and Effect* and *Essays on the Perception of an External Universe*, were published in 1824 and 1827. As the titles suggest, the subject of the first work is the causal relation; while the subject of the 1827 *Essays* is our knowledge of external existence. Evidently, the undertakings in the two books differ in nature. However, as Shepherd is careful to point out, the books are united by an underlying account of causality.¹ Shepherd explains that

'the subjects of the two Essays are capable of being considered independently, yet of throwing a mutual light upon each other.'... 'The analysis, therefore, of the operations of mind from infancy, throws light upon the knowledge we have of cause and effect; and the relation of cause and effect when fully known and established, affords the only method of *proof* in our power, for the knowledge of external existence.'²

It is apparent from these remarks that Shepherd intends to rest her proof of external existence on an account of cause and effect. At the same time, she has elsewhere argued that ideas of cause and effect are to be explained in terms of the mechanical action of external objects on sense organs. This sounds circular, and Shepherd does in fact see the circularity. However, she immediately dismisses the threat, saying that her analysis will not amount to

'reasoning in a circle if by carefully defining the nature of *internal* and *external* existence of *objects perceived and unperceived*, we gain thereby clearer ideas of the *method and action of causation*.'³

Shepherd's claim then, is that the circularity problem can be avoided if we attend to differences between the '*internal* and *external* existence of *objects perceived and unperceived*' and the *method and action of causation*. What could she possibly have in mind? As I will show, Shepherd's two senses of necessary connection, when understood with attention to the distinction between perceived internal, objects and unperceived, external objects, shed light on her response to the circularity problem.

To begin, we'll need to consider Shepherd's two senses of necessary connection, which are described in her 1827 *Essays*:

The necessary connection therefore of cause and effect arises from the obligation that like qualities should arise from the junction, separation, admixture, &c. of aggregates of external qualities. But the necessary connection of *invariable antecedency and subsequency* of successive aggregates of sensible qualities' arises from the necessity 'that there should be *invariable sequences of effects*, when one *common cause* (or exterior object) mixes successively with different organs of sense, or various parts of the human frame, & c. '⁴

Notice that Shepherd's two senses of necessary connection presuppose her distinction between 'perceived internal qualities' and the 'external aggregates of qualities'.⁵ Internal perceived objects, as Shepherd explains, are compounds of ideas and sensible qualities. They are determined to the mind in representation and are ultimately due to the action of exterior objects on sense organs. By way of contrast, exterior, unperceived objects -- the causes of the various species of sensible ideas -- are not directly known. They do, however, indirectly afford a basis for our inferences about external existence.⁶ But, as all of this still sounds very circular, we will need to look more closely at the details of Shepherd's account of necessary connection to see whether she succeeds in escaping the circularity.

The first sense of necessary connection that we will consider is the sense that is discovered through the direct examination of sequences in our representations. Shepherd clears the way for this account by first rejecting Hume's alternative analysis. She rejects, for example, Hume's claim that the experience of regular succession is adequate to account for the subject's sense of necessary connection. Indeed, she entirely rejects Hume's definition of causality based on 'the customary antecedency and subsequency of sensible qualities'. Hume errs, she thinks, because he mistakenly considers sensible qualities which have been determined to the senses to be *causes*, when such perceived qualities must always be considered to be dependent qualities, or *effects*. Moreover, it is a mistake to attribute temporal associations that arise when sensible qualities are noticed by the mind to the perceived sensible qualities themselves. In doing so, Hume compounds his initial error, and ends with a definition of causality that is based on the temporal succession of sensible qualities. Shepherd describes the basis for her rejection of Hume's view as follows:

This impossibility of sensible qualities, being the productive principle of sensible qualities, lies at the root of all Mr. Hume's controversy concerning the manner of causation; for he, observing that such ideas could only follow one another, resolved causation into the observations of the customary antecedency and subsequency of sensible qualities. But objects, when spoken of and considered as causes, should always be considered as those masses of unknown qualities in nature, exterior to the organs of the sense, whose determination of sensible qualities to the sense forms one class of their effects; whereas philosophers, (with the exception of Berkeley) and mankind in general, look upon the masses of sensible qualities after determination to the senses as the causes, the antecedents, the productive principles of other masses of sensible qualities, which are their effects or subsequents; a notion naturally arising from the powerful style of the associations in the mind, and which our Maker has ordained for practical purposes;-- but monstrous when held as an abstract truth in analytical science.⁷

In sum, Shepherd holds that Hume's doctrine rests on a faulty analysis of cause and effect. Hume is wrong, she claims, to think that noticing the temporal order of sensible qualities is essential to causal judgement; indeed, this view of causality is based on an incorrect analysis of causal objects.⁸

Having rejected Hume's definition of causality, Shepherd proposes a form of *a priorism*, arguing "That *reason*, not *fancy* and 'custom', leads us to the knowledge 'That everything which begins to exist must have a Cause.'" This causal axiom, according to Shepherd, follows from the impossibility of conceiving of causes and effects as existing apart without contradiction.⁹ Taken as a bald assertion, that is, without much appreciation for Shepherd's doctrine of causality, the claim is hard to fathom. It might appear, for example, that Shepherd commits a fallacy when she says that to deny her causal axiom leads to contradiction.¹⁰ For, as Hume showed, the principle that 'All *effects* have causes' cannot be used to justify the inference that 'All *events* have causes'.¹¹ Shepherd, however, denies that there is an empirical distinction to be made between effects and events, since 'objects usually considered as effects' always appear to us as 'dependent qualities' that begin to exist.¹² Hence, as a matter of psychological fact, the 'dependent qualities' of which we take notice are one and all *felt events* that begin to exist. As Shepherd writes,

Here is a new quality, which appears to my senses: But it could not arise of itself; nor could any surrounding objects, but one (or more) affect it; therefore that one, (or more) have occasioned it, for there is nothing else to make a difference; and a *difference* could not '*begin of itself*'.¹³

Hence, Shepherd's reply to Hume hinges on her claim that the causal axiom 'That everything which begins to exist must have a cause' is discovered through introspective analysis of the 'manner and action of causation'.¹⁴ For, 'when the mind perceives by what passes within itself, that no quality, idea, or being whatever, can *begin* its own existence, it...perceives the general necessity of a cause for every effect'.¹⁵ Given the discovery of the causal axiom it can be shown that any attempt to *think* 'dependent qualities that begin to exist' as uncaused leads to contradiction.¹⁶ As Shepherd points out, our representations are necessarily bound up and consistent with the causal axiom, so that once the sensations of ideas and sensible qualities in our representations are fully examined and understood, the sense of causal connection that follows is seen to be necessary. Thus, necessary connection is *a priori* -- and it is known in this way because it is a necessary consequence of a causal axiom that is itself known *a priori*.

It is important to note that at this stage, Shepherd has ventured nothing about the specific propositions of natural science and their necessity. Shepherd provides a separate argument to show that natural laws exhibit necessary connection. The argument is intended to prove that 'Nature cannot be supposed to alter her Course without a contradiction in terms' and 'that *Custom and Habit* alone are not our guides; but chiefly reason, for the regulation of our expectations in ordinary life'. Moreover, it turns out that the discovery and justification of necessary connection in natural laws is much the same as the discovery and justification of necessary connection in any of our representations. For Shepherd, all such reasoning is viewed as 'experimental' in nature, and is based on a two-step method:

Thus all experimental reasoning consists in an observation, and a demonstration, as has been shown; --an observation whether the circumstances from which an object is produced, and in which it is placed, are the same upon one occasion as upon another; -- and a demonstration, that if it is so, all its exhibitions will be the same.¹⁷

In the first step, the mind takes notice of 'like qualities' and 'invariable sequences of effects' in compound sense objects, and the invariability of the sequence leads us to conclude that there probably exists a causal connection.¹⁸ Next, an *experimentum crucis* is performed in which the mind considers whether the difference in qualities could have begun of itself, and concludes that 'after the application of an exact experiment, it is impossible to imagine a difference of qualities to arise under the same circumstances'.¹⁹ And, when an external object gives rise to an invariable sequence of qualities that passes the test of the *experimentum crucis*, we say that we have discovered a necessary connection of cause and effect.²⁰ Thus, any necessity discovered through empirical investigation is demonstrated independently of the scientific investigation that led to empirical generalisation. As such, the sense of necessary connection discovered in an empirical generalisation only becomes apparent to us once the ideas and meanings contained in the representations in our propositions are fully examined.

The force of Shepherd's answer to Hume seems to rest on her view that questions relating to *a posteriori* knowledge of cause and effect lead directly to questions pertaining to *a priori* knowledge of the causal relation.²¹ In developing this point, Shepherd introduces a sense of *a priori* that extends beyond what Hume would have understood by the term. For Hume, to say that something that is known *a priori* is just to say that it is known by analysis alone; whereas Shepherd makes it explicit that on her view, experience leads us to the discovery *a priori* knowledge. Her view is perhaps best understood in conjunction with Kant's famous remark (made in the Introduction to his first *Critique*) that 'though all of our knowledge begins with experience, it does not follow that it all arises out of experience'.²² What Kant means is that we discover *a priori* truth with the help of experience, but that the justification for such truth is itself independent of particular experience. This is a good way to understand Shepherd's view that the *a posteriori* question concerning necessary connection is 'sunk in' the *a priori* one. As Shepherd explains:

It may be plainly seen, that the first of these questions (*a posteriori*) is sunk in the latter (*a priori*), because, if objects usually considered as effects need not be considered as effects, then they are forced to begin their existences of themselves; for, conjoined or not to their causes, we know by our senses that they do begin to exist: we will, therefore, immediately hasten to the consideration of the second question (*a priori*), which may be stated in the following terms: Whether every object which begins to exist *must* owe its existence to a cause?²³

In effect, what Shepherd proposes is an 'epistemological ascent' from introspection and empirical generalisation to talk of necessary connection. Such an account might not satisfy the post-Humean critic of causality, but it does count as one kind of answer to Hume. Moreover, Shepherd's necessitarian response is not an entirely new one. It has earlier Continental roots, especially, but not exclusively, in Kant. And, as it turns out, Kant's response to Hume is helpful for appraising the general aims and significance of Shepherd's philosophical contribution.

Kant explains that his own critical philosophy was inspired by Hume's critique of metaphysical concepts such as causality.²⁴ Indeed, Hume had demonstrated that,

We cannot at all see why, in consequence of the existence of one thing, another must necessarily exist or how the concept of such a combination can arise a priori. Hence he inferred that reason was altogether deluded with reference to this concept [i.e. that of cause and effect]...²⁵

Kant saw Hume's critique of causality not only as an undermining of the old procedures in metaphysics, but also as a threat to natural science, rendering it no better than fiction and fantasy. His response to Hume was to show that the concepts and propositions of metaphysics and science *can* in fact be known *a priori*. Specifically, Kant argues that metaphysical concepts such as causality are necessary, universal, and objective, and that reason infers objective knowledge from our representations of the empirical world. Shepherd's own response to Hume is based on a similar claim. For Shepherd, not only do we have knowledge of causal necessity, but necessary connection is discovered by means of a causal axiom that is known *a priori*. Thus, the similarity to Kant's view is readily apparent.

So much for the first of Shepherd's senses of necessary connection. Doubtless, Hume would object that Shepherd's account is based on *her* mistaken assumptions about representation, and that her appeals to deductive tests are therefore useless to assist in her cause. Moreover, Hume clearly rules out the legitimacy of appeals to experimental philosophy to justify our expectations for the future. He remarks that such appeals 'must evidently be going in a circle and taking that which is the very point in question for granted.'²⁶ Why then, does Shepherd think that she has escaped the circularity charge and provided a basis for proof of our knowledge of external existence? In order to pursue this question further, we will need to attend to Shepherd's second sense of necessary connection.

Shepherd's second sense of necessary connection derives from her belief that there is substantial evidence for metaphysical determinism. In this instance, the necessary connection discovered in knowledge is understood in connection with the metaphysical necessity that

governs unperceived, exterior objects in nature. As Shepherd writes, 'all of the exterior and uncombined objects, whose junction is necessary to an event' are causes that lead up to the proximate cause that we identify with an event.²⁷ For the moment, we shall leave aside the full details of Shepherd's appeal to metaphysical determinism, in order to consider the epistemological implications that she draws from this assumption. For there is a further aspect to her view of *knowledge* that derives from the assumption of metaphysical determinism. This point is best explained in connection with Shepherd's 1827 *Essays* and her claim that all knowledge must be subsumed under the causal axiom.

In the 1827 *Essays*, Shepherd continually draws attention to the fact that all knowledge, regardless of character, turns on reasoning about causes. Consider the following examples: The sense organs, she says, are known by inference to their causal role in bringing about effects of which we are conscious.²⁸ Similarly, ideas of moral and aesthetic worth, she argues, are dependent on the activities of the brain and nervous system, and ultimately on the actions of thinking minds.²⁹ Likewise, knowledge of final causes depends on an analysis of causation; for, ideas of final causes are mental qualities discernible in the sensations of the actions of the brain.³⁰ Finally, where there is evidence for design in creation, there is also evidence for the action of efficient causes equal to bringing about the 'contrivance'. It is evident then, that Shepherd holds causal reasoning to be central to all forms of knowledge, including, as might be surmised, knowledge of the existence of a Deity.

Shepherd's design argument does not have the character of a 'demonstrative proof'; it is an argument by analogy. The argument is, of course, tied to her assumption of metaphysical determinism. Indeed, Shepherd clearly has a theistic agenda. As Blakey explains, Shepherd worried that Hume's doctrine would lead, by 'inevitable consequence', to 'downright atheism'. For, Hume's denial of the causal maxim that every effect must have a cause destroys 'at one fell swoop, the foundation of all arguments for the existence and providence of a Deity.'³¹ In contrast to Hume, Shepherd argues that the analysis of the mind's contents enables us to discover the causal axiom, which, in turn, forms the basis for our beliefs about external existence. These beliefs, she argues, continually point to metaphysical determinism. Ultimately, this analysis forms the basis for our belief in God as the only cause sufficient to bring about such a world. Indeed, 'contemplation upon the phenomena of nature' leads us to conclude that, in order to 'account for the facts' there must be 'one intelligent being' that is the 'renovating power for all the dependent effects, all the secondary causes beneath our view.'³² With arguments such as these, it is evident that Shepherd takes causal reasoning to underlie all inference to external existence. Thus, on the strength of her 1824 defense of the causal relation, Shepherd supposes there to be evidence for both metaphysical necessity and a Divine Creator.³³

Shepherd's continual return to the subject of causality in the 1827 *Essays* is, of course, to be expected. Her expressed intention is to rely on cause and effect in proving knowledge of external existence. As Shepherd writes, '...the question concerning the *nature* and *reality* of external existence can only receive a satisfactory answer, derived from a knowledge of the *relation of Cause and Effect*.'³⁴ But it is worth noting *how* and *why* Shepherd's arguments for external existence underscore this dependence, -- because this dependence, it turns out, is a dependence on the causal axiom.

To see *how* the dependence on the causal axiom is supposed to work, consider Shepherd's argument that the causal axiom supplies a basis for *all* inferences to external existence. Once the variety in sensation has been detected and analysed, we are able to infer, using the causal axiom, the existence of continuous, external, and independent objects.³⁵ As Shepherd writes, '*continuous* existence is known by *inference*, not by *sensation*; for every sensation passes away, and another is created ? but none of these, in its turn, could 'begin its own existence;' therefore they are but changes upon the existences which are already in being ? they are effects requiring causes.'³⁶ But as each mind could not change, unless *interfered* with, therefore the *interfering* object is *exterior* to the mind'.³⁷ She later adds that 'Those circumstances which go to prove that there must be truly *outward* causes, for particular sensations, prove them to be independent causes of those sensations.'³⁸

In addition to seeing *how* Shepherd's appeal to the causal axiom features in the arguments of the 1827 *Essays*, it is worth taking note of *why* she does so. For, Shepherd's continual return to the causal axiom is very deliberate, and it reflects her aspiration to a systematic philosophy. Indeed, it would appear that subsumption under a causal axiom generalizes to everything in creation, which is itself, of course, causally determined. To 'understand God aright' she says, 'he cannot work a contradiction; he cannot occasion the same objects without any alteration amidst them supposed to produce dissimilar effects.'³⁹ What Shepherd means, effectively, is that because God created a deterministic world, our knowledge of such a world must be consistent with the causal axiom.⁴⁰ As Shepherd reminds us 'All laws of nature are comprehended in one universal law, that similar qualities being in union, there will arise similar results'.⁴¹ Shepherd's view then, is that all objects and events in the world were created by God in conformity with a consistent set of ideas based around the causal axiom. Metaphysical determinism implies that God made the world such that it corresponds to the idea of cause expressed by the axiom 'every event has a cause.' Hence every event in the universe conforms to this axiom, not only by having a cause, but also by being such that it could not exist without a cause.

An interesting implication of Shepherd's view is that every law of nature is a necessary law in

virtue of its following analytically from some idea used by God in creating the world. Moreover, potentially, any empirical truth, when fully understood, might be seen to be a necessary truth. This view collapses the traditional distinction between laws of nature and the propositions of mathematics. Consider, for example, Shepherd's interpretation that Newton rightly attributes necessity to the law of gravitation.⁴² Shepherd doubts that there could have existed even 'the slightest shade of difference between the degree of his [Newton's] assent to this inductive result, and that extorted from him by a demonstration of Euclid [?]'⁴³ On her view, the shared degree of necessity underlying mathematical theorems and the law of universal gravitation follows because both must have one and the same foundation. As Shepherd explains, 'THE DOCTRINE OF CAUSATION IS UNDERSTOOD BY SCHOLARS AS THE BASE ON WHICH THE TRUTH OF EVERY THEOREM IS SURELY BUILT.'⁴⁴ For, 'when objects are formed the same upon one occasion as another' she reasons, 'their qualities, properties, and effects, will be similar.' She adds that 'It is this proposition on which mathematical demonstration, and physical induction equally, and only, rest for their truth.'⁴⁵ Thus the certainty in mathematics is dependent on the manner and action of causation that we trace in the '*original FORMATIONS of the objects*', and necessity in physical laws follows along similar lines. True physical laws are not merely contingent, they are also necessary. Shepherd concludes that, '*the science of mathematics is truly but one branch of physics*' since 'all the conclusions its method of induction demonstrates, depend on the truth of the proposition 'That like cause must have like effect'.⁴⁶

'That like cause must have like effect;' a proposition which being the only foundation for the truths of physical science, and which gives validity to the result of any experiment whatever, ranks mathematics as a species under the same genus; where the same proposition is the basis, there is truly but one science, however subdivided afterwards.'⁴⁷

Given what has been said so far, the close connection that Shepherd draws between mathematics and physics is not that surprising. Shepherd makes it clear that causal reasoning is central to just about anything that could deserve to be called 'knowledge'. This is, evidently, quite simply a consequence of the metaphysically deterministic world that God has created.

There are, of course, precedents for the view that necessity in knowledge follows from the way that God made the world. Kant, for example, held that there is a unity of visible and invisible worlds, and that this unity justifies the appeal to systematic unity as a criterion of truth. For Kant then, the appeal to the *a priori* elements in representation is only part of the story when it comes to empirical truth. He also has other methodological considerations in view -- second order desiderata that supply criteria for judging the status of a theory. Kant links these criteria to a drive on the part of reason to unify knowledge. He writes that reason's unity '...aids us in discovering a principle for the understanding in its manifold and special modes of employment, directing its attention to cases which are not given, and thus rendering it more coherent.'⁴⁸

For the law of reason which requires us to seek for this unity is a necessary law, inasmuch as without it we should not possess a faculty of reason, nor without reason a consistent and self accordant mode of employing the understanding, nor, in the absence of this, any proper and sufficient criterion of empirical truth. In relation to this criterion, therefore, we must suppose the idea of the systematic unity of nature to possess objective validity and necessity.⁴⁹

Thus, reason requires us to seek unity in science, and this unity ultimately secures the sort of necessity for the law-likeness that we find in the 'order of nature'⁵⁰ As Kant explains in his *Critique of Pure Reason*, empirical laws must be thought to be *necessary* because reason regards them to be part of a systematic and unified order of nature. Kant describes the relationship between particular empirical generalizations and the unity of the 'order of nature' in just this way:

...that we are justified in declaring all possible cognitions -- empirical and others -- to possess systematic unity, and to be subject to general principles from which, notwithstanding their various character, they are all derivable -- such an assertion can be founded only upon a transcendental principle of reason, which would render this systematic unity not subjectively and logically -- in its character of a method, but objectively necessary.⁵¹

Kant's view then, is that empirical law-likeness is partly the result of an embedding in a system or theory under a few general principles. On his view, the embedding is justified by appeal to transcendental principles. As we have seen, a similar tendency toward systematicity and subsumption is evident in Shepherd's philosophy. *However*, on Shepherd's account, it is explicit that we have necessary knowledge because the subsumptive causal axiom resembles the ideas of cause and effect used by God in his creation of the physical world. Moreover, subsumption is a legitimate methodological goal, presumably because God intended us to have knowledge of the physical world, and so created the world using ideas that resemble our causal axiom.

We have now considered Shepherd's two senses of necessary connection and their implications for knowledge of cause and effect and external existence. However, we have yet to answer our original question; namely 'Why does Shepherd summarily dismiss the circularity problem in her proof of external existence?' Having carefully distinguished external, unperceived objects and internal, perceived objects and the two different senses of necessary connection, we see that Shepherd has in fact taken steps to address the circularity problem. Her efforts to avoid circularity can be linked to the two kinds of epistemic constraints on empirical truth implicit in her accounts of necessary connection. First, there are the constraints on empirical knowledge from the *a priori* causal axiom and its role in representation. Secondly, there are the constraints supplied by the systematic unity in our knowledge of nature. Shepherd takes both sorts of epistemic constraints quite seriously, and

it is perhaps in view of these constraints that she anticipates an escape from circularity. In particular, Shepherd's second sense of necessary connection, the sense that justifies the search for systematic unity and subsumption under the causal axiom, holds promise for such an escape. For subsumption and systematicity extend Shepherd's account of necessity, so that there are quite simply more sources of necessity in theoretical knowledge. In thus widening her account of necessary and empirical truth, Shepherd extends her view of scientific knowledge well beyond the empirical generalization view that Hume likely had in mind when he claimed that an appeal to experimental philosophy would amount to a circular justification for our future expectations.

Hence, Shepherd's second sense of necessary connection, although it comes loaded with metaphysical and theological presuppositions (which she does, of course, try to defend by argumentation), extends further support for her claim that we can draw inferences from the marks of objective reality to knowledge of an external world. The success of such a strategy is surely open to dispute, but in the end, it helps to widen the circle enough to make room for a more compelling account of the inferential and subsumptive character of our knowledge of external existence. Most importantly, it enables Shepherd to develop a representational theory that is less *obviously* circular --if not entirely free of the circularity -- that she so readily dismisses.

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Mary Shepherd (1777- 1847).

Shepherd's two major philosophical works: *An Essay upon the Relation of Cause and Effect* (1824) and *Essays on the Perception of an External Universe* (1827).

'...the subjects of the two Essays are capable of being considered independently, yet of throwing a mutual light upon each other.'... 'The analysis, therefore, of the operations of mind from infancy, throws light upon the knowledge we have of cause and effect; and the relation of cause and effect when fully known and established, affords the only method of *proof* in our power, for the knowledge of external existence.' (Shepherd 1827, xiv-xvi)

[The analysis will not amount to] '...reasoning in a circle if by carefully defining the nature of *internal* and *external* existence of *objects perceived and unperceived*, we gain thereby clearer ideas of the *method and action of causation*.' (Shepherd 1827, xii)

The necessary connection therefore of cause and effect, arises from the obligation, that like qualities should arise from the junction, separation, admixture, &c. of aggregates of external qualities. **[Sense 2]** But the necessary connection of *invariable antecedency and subsequence* of successive aggregates of sensible qualities' arises from the necessity 'that there should be invariable *sequences of effects*, when one *common cause* (or exterior object) mixes successively with different organs of sense, or various parts of the human frame, & c. **[Sense 1]** (Shepherd 1827, 130-1)

This impossibility of sensible qualities, being the productive principle of sensible qualities, lies at the root of all Mr. Hume's controversy concerning the manner of causation; for he, observing that such ideas could only follow one another, resolved causation into the observations of the customary antecedency and subsequence of sensible qualities. But objects, when spoken of and considered as causes, should always be considered as those masses of unknown qualities in nature, exterior to the organs of the sense, whose determination of sensible qualities to the sense forms one class of their effects; whereas philosophers, (with the exception of Berkeley) and mankind in general, look upon the masses of sensible qualities after determination to the senses as the causes, the antecedents, the productive principles of other masses of sensible qualities, which are their effects or subsequents; a notion naturally arising from the powerful style of the associations in the mind, and which our Maker has ordained for practical purposes;--but monstrous when held as an abstract truth in analytical science. (Shepherd 1827, 126-7)

Here is a new quality, which appears to my senses: But it could not arise of itself; nor could any surrounding objects, but one (or more) affect it; therefore that one, (or more) have occasioned it, for there is nothing else to make a difference; and a *difference* could not '*begin of itself*'. (Shepherd 1824, 43-4)

Thus all experimental reasoning consists in an observation, and a demonstration, as has been shown; --an observation whether the circumstances from which an object is produced, and in which it is placed, are the same upon one occasion as upon another; --and a demonstration, that if it is so, all its exhibitions will be the same. (Shepherd 1824, 108)

It may be plainly seen, that the first of these questions is sunk in the latter, because, if objects usually considered as effects need not be considered as effects, then they are forced to begin their existences of themselves; for, conjoined or not to their causes, we know by our senses that they do begin to exist: we will, therefore, immediately hasten to the consideration of the second question, which may be stated in the following terms: Whether every object which begins to exist must owe its existence to a cause? (Shepherd 1824, 34)

[Hume demonstrated that] We cannot at all see why, in consequence of the existence of one thing, another must necessarily exist or how the concept of such a combination can arise a priori. Hence he inferred that reason was altogether deluded with reference to this concept [of cause and effect]...(Kant, IV, 257)

All laws of nature are comprehended in one universal law, that similar qualities being in union, there will arise similar results. (Shepherd 1827, 329)

In short, did there exist the slightest shade of difference between the degree of his [Newton's] assent to this inductive result, and that extorted from him by a demonstration of Euclid? (Shepherd 1827, 278)

"That like cause must have like effect;" a proposition which being the only foundation for the truths of physical science, and which gives validity to the result of any experiment whatever, ranks mathematics as a species under the same genus; where the same proposition is the basis, there is truly but one science, however subdivided afterwards.' (Shepherd 1827, 278-9)

For the law of reason which requires us to seek for this unity is a necessary law, inasmuch as without it we should not possess a faculty of reason, nor without reason a consistent and self accordant mode of employing the understanding, nor, in the absence of this, any proper and sufficient criterion of empirical truth. In relation to this criterion, therefore, we must suppose the idea of the systematic unity of nature to possess objective validity and necessity. (Kant, *Critique*, A 647/B 675)

...that we are justified in declaring all possible cognitions -- empirical and others -- to possess systematic unity, and to be subject to general principles from which, notwithstanding their various character, they are all derivable -- such an assertion can be founded only upon a transcendental principle of reason, which would render this systematic unity not subjectively and logically -- in its character of a method, but objectively necessary. (Kant, *Critique*, A 648/B 676)

1. Mary Shepherd, *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: T. Hookham, 1824). Hereafter cited as Shepherd (1824). *Essays on the Perception of an External Universe and Other Subjects Connected with the Doctrine of Causation* (London: John Hatchard and Son, 1827). Hereafter cited as Shepherd (1827).
2. Shepherd (1827), xiv-xvi.
3. Shepherd (1827), xii.
4. Shepherd (1827), 130-1.
5. Shepherd (1828), 624.
6. Shepherd (1827), 125.
7. Shepherd (1827), 126-7.
8. The 1827 argument places greater emphasis on the analysis of sensible objects, although Shepherd mentions the point in her 1824 treatise as well. See Shepherd (1824), 42n.
9. Shepherd (1824), 30.
10. Shepherd (1824), 27.
11. David Hume, *A Treatise of Human Nature*, L.A. Selby-Biggs (ed.), (Oxford: Clarendon Press, 1980), 157. *An Inquiry Concerning Human Understanding* in *The Philosophy of David Hume*, V. Chappell. ed., (New York: Random House, 1963) 327-330. Immanuel Kant. *The Critique of Pure Reason*, N. Kemp-Smith, ed. (London: Macmillan, 1929), B 289.
12. Shepherd (1824), 29.
13. Shepherd (1824), 43-44
14. What Shepherd maintains is that the sensible qualities discovered in introspection give rise to ideas of invariable sequences, so that our representations include both ideas of cause and effect as well as sensible qualities *in the very moment of formation*. Further analysis then leads the mind from the discovery of the causal axiom to necessary connection. For, 'objects which we know by our senses do begin their existences' and reason discovers 'that they cannot begin it of themselves.' Shepherd (1824), 43.
15. Shepherd (1827), xv. The claim that neither perception nor acts of will contain an element of necessity is, of course, the very claim that Kant denied when he maintained that the faculty of understanding supplies an *a priori* rule for causal judgements. Kant's argument is based on the claim that we can distinguish between cases where we perceive the mere temporal succession in appearances and cases where we perceive an objective order in the succession of appearances. The very fact that we are able to make the sort of determination that leads to a causal judgement, Kant argues, should lead us to infer the existence of an *a priori* causal principle at work in understanding.
16. Shepherd (1824), 30.
17. Shepherd (1824), 108.
18. Shepherd (1827), 131.
19. Shepherd (1824), 129.
20. Shepherd (1827), 325, 232 and 138.
21. Shepherd (1824). On page 19, Shepherd notes that Hume rests his case for the claim that nature could alter her course without contradiction on his further claim that we can have neither a *priori* nor a *posteriori* knowledge of causality.
22. *Critique*, [B1].
23. Shepherd (1824), 34.
24. Hume's question, 'By what right does [reason] think anything could be so constituted that if that thing be posited, something else must necessarily be posited [?]', suggested a critique so penetrating that metaphysics would need a new foundation upon which to determine the grounds and extent of human knowledge.
25. J. Ellington. 1985. *Immanuel Kant: Philosophy of Material Nature* (Indianapolis: Hackett Publishing Company, 1985) [IV, 257]. Hereafter cited as Ellington.
26. Hume, *Enquiry* Section IV Skeptical Doubts Concerning the Operations of the Understanding, Part II., 5th paragraph. Need Standard Reference.
27. Shepherd (1827), 124.
28. Shepherd (1827), 234-7.
29. Shepherd (1824), 172-3 and Shepherd (1827), 267-8.
30. Shepherd (1827), 347-8.
31. Blakey, 42.
32. Blakey, 43-44.
33. John Fearn went so far as to accuse Shepherd of endorsing an unorthodox theology -- a

theology in which God is involved in immanent causation in the world. Fearn's criticism would presumably have been based on a description of God such as the one above in which God is seen as a 'renovating power'. Shepherd replied to Fearn's attack, saying that 'if by an attempt to be consistent and clear, I felt that I was running the risk of lessening the sublimity of that beautiful and mysterious truth, that there is an ever-present existing Deity, I would not venture upon the discussion of the subject...'. Shepherd (1832) 708. Shepherd's views on religion might require a whole other book.

³⁴. Shepherd (1827), xii.

³⁵. Cf. Shepherd (1827), 168. Think of a tap that drips water. The variety in the dripping sounds, the independence of each drip and the conscious sensation of the dripping water may all be detected by the senses. In this case a pattern of repetition is detected, but perhaps not as a primary quality. It is important to note that Shepherd does not rest her argument for the existence of exterior objects on the representation of primary qualities through their detection in secondary ones.

³⁶. Shepherd (1827), 121. In a similar passage, Shepherd claims that '?...the independancy which the causes of the objects of sense have of the capacity to general sensation is proved by their affecting changes of qualities, of which the mind has no conscience.?'

³⁷. Shepherd (1827), 43.

³⁸. Shepherd (1827), 76.

³⁹. Shepherd (1827), 289.

⁴⁰. A miracle is just an *apparent* deviation from nature's course as we understand it. No miracle could actually violate the causal law or nature's laws. As Shepherd writes -- a miracle is merely 'an exception to nature's apparent course'.

Shepherd (1827), 335.

⁴¹. Shepherd (1827), 329.

⁴². The only criticism that Shepherd makes in connection with the doctrine of Newton is aimed at her common sense counterparts. Shepherd criticises the idea that the empiricist theory of representation of exterior objects by means of the direct perception of primary qualities is an inadequate interpretation of the basis for Newton's claim to objectivity in his method. Such as view of his inductive method, she rightly notes, would be 'puerile and unphilosophical'. This view is interesting given her wider philosophical views, but not the salient point for our purposes in this discussion. It is worth remarking upon, however, for it is a point in Shepherd remarked upon by John Fearn, who fails to grasp her meaning. Shepherd (1827), 289.

⁴³. Shepherd (1827), 278.

⁴⁴. Shepherd (1827), 285.

⁴⁵. Shepherd (1827), 279.

⁴⁶. Shepherd (1827), 278-9.

⁴⁷. Shepherd (1827), 278-79.

⁴⁸. Critique of Pure Reason, [A 647/B 675].

⁴⁹. Critique of Pure Reason, [A 647/B 675].

⁵⁰. G. Buchdahl, *Metaphysics and the Philosophy of Science* (Oxford: Basil Blackwell, 1969), 497.

⁵¹. J. M.D. Meiklejohn, ed., *Kant: Critique of Pure Reason* (London: J.M. Dent & Sons Ltd.) 1934 B-edition, [A 648/B 676].